The New England
Journal of Medicine

VOLUME 204 MAY 28, 1931 NUMBER 22

EMBOLISM OF THE ABDOMINAL AORTA*

BY ROBERT L. MASON, M.D.,† AND SHIELDS WARREN, M.D.†

SURGICAL literature during the past few years reflects the growing interest in the occurrence of occluding arterial emboli and their surgical removal by embolectomy. While all the reports do not record a successful outcome of operative interference, their value lies in directing attention to the clinical aspects of obstructing emboli and to the possibilities of prompt surgery. Concerning the latter, Pemberton[1] has very aptly stated, in a recent article: "There is no established operative procedure of equal simplicity, fraught with so little risk and with such dramatic potentialities, that has been so woefully neglected as embolectomy for circulatory disturbances of the extremities."

In this article, we wish to review briefly the conditions which underlie the occurrence of arterial emboli and to report a case which illustrates at one time the possibilities of operation and the futility of attempting to bring this type of case to a successful outcome. We are reporting our case in some detail in order to emphasize the clinical aspects.

The patient, a woman of 62, had always considered herself well. She had had no infectious diseases except those of childhood. Four years before, she had developed diabetes. This had been well treated by her home physician. Two years before she had noted a small mass in the right lobe of the thyroid. There were no apparent signs of toxicity until about six months before entrance. At this time she noted palpitation, pounding of her heart, dyspnoea on slight exertion, emotional instability and a subjective sensation of heart. She had lost 12 pounds in weight during this time. A basal metabolism taken at her home city, showed a rate of +30. X-ray treatment had been given without improvement.

Examination showed a woman of 62 obviously severely thyrotoxic. Both lobes of the thyroid were involved in a nodular enlargement with an adenoma of the right lobe eight cm. in diameter, the lower half of which extended below the clavicle. Examination of the heart showed no definite abnormality. The blood pressure was 180/80. After seven days' careful preparation, including care of the diabetic condition, which was mild, right first stage hemithyroidectomy was done. She made an excellent recovery and was discharged 12 days later to her home physician with instructions to return after an interval of six weeks for completion of the operation. At the end of this period she returned. During the interval she had had transient edema of the legs and her pulse showed heart fibrillation at times. These features were well treated by her home physician, however, and when she came to the hospital she showed definite improvement over her previous condition. She had gained weight, was sugar free and subjectively felt quite well. After five days' preparation, left second stage subtotal hemithyroidectomy was done.

During the next four days, her condition was not remarkable except for transient periods of auricular fibrillation. At 7:30 in the morning on the fifth day after operation, she awoke feeling quite well in every way. She then suddenly felt a severe aching pain throughout the whole lower right leg. The pain soon involved the whole leg from the midthigh downward. She then noticed that she could not feel the bedclothes over her foot. As time went on the pain diminished somewhat; she had a sensation as of "pins and needles" and the whole lower leg felt as if it were "dead".

On examination three hours later the leg was seen to be definitely blanched from about a hand's breadth above the knee downward. There was no blotching. The right leg felt noticeably less warm than the left, especially in the lower leg and foot. Thermocouple readings were taken with the following results:—

Temp. of patient 99.8°; Temp. of room 74.4°.

	Right leg	Left leg
Tip of big toe	71.8	86.8
Base " " "	73.6	84.8
Tip of 3rd toe	71.3	84.3
Base " " "	72.8	84.8
Dorsum of foot	76.8	85.2
Plantar " "	74.8	82.4
Above Lat. Malleolus	78	82.4
" Med. "	76.3	81.6
Lat. calf	82.4	82.4
Post. "	85.6	87.8
Med. "	79.8	82.4
Lat. thigh	82.4	82.8
Ant. "	82.8	82.8
Med. "	82.8	83.8

No pulsation could be felt in the posterior tibial, the dorsalis pedis or the popliteal arteries. Femoral pulsation could be felt high up, just below Poupart's ligament. In fact it seemed rather stronger at this point than normal. All of the arteries mentioned could be felt pulsating strongly in the opposite leg. Because of the recent transient auricular fibrillation, the sudden onset of pain, the lowered temperature, the blanching and the absent pulsation of the peripheral vessels, a diagnosis was made of occluding embolus at the outlet of the profunda femoris. Embolectomy was advised.

Operation was performed four hours after lodgment of the embolus. Spinal anaesthesia. Incision 12 cm. in length over the right femoral vessels; the upper end of the incision began about two fingers' breadth above Poupart's ligament and was continued downward. The great saphenous vein was encountered and carefully preserved. Dissection was carried downward upon the femoral artery. Pulsation was seen to stop just above the emergence of the

*From the Lahey Clinic and New England Deaconess Hospital.

†Mason—Surgeon, Polyclinic, Memphis, Tennessee. Warren—Pathologist, New England Deaconess Hospital, New England Baptist Hospital, et al. For records and addresses of authors see "This Week's Issue", page 1171.

profunda femoris. Below this area for a distance of two inches the artery was markedly diminished in calibre. The pulsation at the point of its cessation caused a downward thrust of the artery similar to that seen in the ligation of an artery in an amputation stump. The artery distal to the constricted portion was carefully freed and a section of tape passed beneath it. In this way the artery could be constricted at this point to prevent the clot from being pushed downward. The profunda was next dissected free for about 1½" downward. The artery above the obstruction was also freed. A tape was passed beneath the profunda and beneath the artery above the obstruction. Tension was applied on all the tapes and an incision slightly less than one cm. was made in the artery just above the outlet of the profunda femoris. A clot presented in the opening. A gentle milking pressure from below caused the entire clot to emerge. It was of the "Y" type; one limb having been in the profunda femoris and the other in the continuation of the femoral artery, the perpendicular portion extending upward in the main artery.

After the clot was expelled there was moderate back bleeding from the profunda. This was quickly controlled by traction on the profunda femoris. The arteriotomy opening was now closed by a running continuous suture of Japanese oiled silk, approximating intima to intima. A running continuous suture was now taken in the everted portion created by the mattress suture. The constricting tapes were now removed. There was no bleeding from the line of suture. The pulsation was quickly established in the exposed artery. Palpation of the dorsalis pedis and popliteal arteries revealed good pulsation. The foot felt definitely warmer to touch.

Thermocouple readings were taken revealing but a slight difference in temperature of the two feet. The leg was wrapped in absorbent cotton and a loose bandage applied. Patient's general condition was excellent.

She made an excellent operative recovery and during the next five days, except for transient auricular fibrillation, her condition was quite satisfactory. The circulation in the leg was completely reëstablished; the temperature was equal in both legs. She could move the leg and foot normally and stated that the leg and foot felt as "they always had". On the evening of the fifth day she complained of pain in the right lumbar region. She was restless and generally less well than the preceding days. The urinary sediment contained a few red cells. The pain in the back was interpreted as due to a renal infarct. The following day she was much improved although there was tenderness in the right lumbar region. Digitalis had been started at the time of the renal infarct and the pulse was now regular. At noon of the following day, seven days after the successful femoral embolectomy, she was suddenly seized with agonizing pain low down in the middle of the lower back and in both legs. She was seen fifteen minutes later. The pain was apparently terrific. From about two fingers' breadth below the umbilicus downward the skin was of a blotched marble color. No pulsation could be felt in the dorsalis pedis, posterior tibial, popliteal or femoral arteries of either leg. The temperature of the skin in the involved area was markedly diminished. Blood pressure was 160/80; pulse rate 120, rhythm regular. A diagnosis of an embolus at the bifurcation of the aorta and preparations for immediate operation were made. The pain continued intense in spite of two hypodermic injections of ½ grain of morphia at short intervals. Operation was done at 12:30, 45 minutes after the onset of the occlusion.

OPERATION

Spinal anaesthesia. With the patient in Trendelenburg position, a mid-line suprapubic incision was made, extending to the right of the umbilicus. It was noted that there was scarcely any bleeding from the lower four inches of the incision while above this there was the usual amount. The intestines were carefully walled off into the upper abdomen. Pulsation was absent in both iliac arteries. When followed upward, pulsation was seen to cease just above the bifurcation of the aorta. The iliac veins appeared to be dilated. The cecum and ascending colon were now mobilized well upward toward the hepatic flexure and reflected inward. The right ureter was identified and retracted. By further reflecting the cecum and ascending colon inward, the bifurcation of the aorta was clearly exposed. Constricting tapes were applied around each common iliac artery and around the aorta above the point of cessation of pulsation. This entailed but a moderate amount of dissection

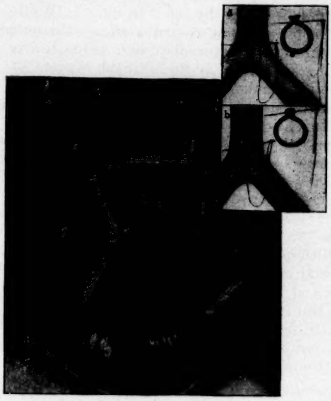

FIG. 1. Exposure of bifurcation of aorta by reflection of cecum inward. Embolus being extruded through incision just above bifurcation. Common iliac arteries constricted with tapes to prevent loss of blood from back flow and to prevent possible propulsion of portion of embolus downward. Insert shows manner of suture of aortotomy.

around these vessels. It was found that it was not possible to occlude the aorta by the constricting tape. Rubber tubing was threaded on a light right angled clamp and the artery compressed with this instrument. An incision 1 cm. in length was now made beginning about ½ cm. above the bifurcation of the aorta. On opening the vessel the embolus presented. By careful milking above and below, the entire clot, which was about 2 cm. in diameter and 3 cm. in length, was extruded. Bauer, in his case, likened the shape of the embolus to a molar tooth, and the embolus in this case could be described similarly, the main portion having occupied the lumen of the aorta with a root extending downward into each common iliac artery. After extrusion of the embolus, there was a momentary escape from the incision of dark blood from below. This was immediately controlled by traction on the tapes surrounding the iliac arteries. The incision in the aorta was now closed in the usual manner, that is, with a running mattress suture, approximating intima to intima, followed by an over and over reinforcing suture. (Fig. 1.) The suture material was silk, somewhat heavier than the usual arterial silk. On completion of the suture, the clamp on the aorta was released and the constricting tapes removed from around the iliacs. Pulsation was promptly reëstablished with-

out leakage from the line of suture. At the moment of releasing the clamp, the blood pressure which had previously been 150/70 dropped to 62/40. 5m. of adrenalin were given intramuscularly and the blood pressure rose to 120/60. Pulsation could now be felt in both popliteal and dorsalis pedis arteries. The peritoneum along the lateral abdominal wall was now resutured, peritonealizing the denuded area. Abdominal wound closed in layers. There was a moderate degree of shock. A transfusion of 500 c.c. of citrated blood was given with definite improvement.

When seen that evening, her condition seemed satisfactory in every way. There was strong pulsation in all palpable arteries of both legs. During the early morning she complained of pain in the right lumbar region, similar to that which she had several days before. From that time on, her condition gradually failed. Urinary output was scant. There were transient muscular twitchings. She vomited frequently. At three o'clock on the day following operation, her condition appeared to become suddenly worse and she died. Circulation in both legs was maintained to the end, 26 hours after operation. Death was attributed to renal insufficiency.

Autopsy was done by Dr. Shields Warren, and will be discussed later in this paper.

Embolism obstructing the aorta is not common. Welch[3], in 1899, collected 59 cases of embolism and thrombosis of the aorta, 45 referable to embolus and 14 to thrombus. The source of the embolus was the heart in 35 cases. Hesse[8], in 1921, brought the literature up to date, and including 41 cases mentioned by Welch, reported 73 cases. Wylde[4] in 1922, was able to find 94 cases and reported two of his own. Banovitch and Ira[5], in 1928, found 11 further cases in the literature and reported upon five more which had come under their observation. Since then, reports of five additional cases have appeared; those of Sherrill[6], Hamilton[7], Burrow[8], Pemberton[1], and Walker (reported by Lerman[9]). These, together with the case reported, bring the total to 116 cases. This number does not represent an exhaustive search of the foreign literature and it is quite possible that this would reveal additional cases. However, it is obvious that the condition is relatively infrequent. Matas[10], in discussing a recent paper, stated that throughout the world there had been 17 embolectomies performed for aortic embolism, mostly by Scandinavian surgeons. Of these 17, there had been two permanent recoveries. One of these was probably that of Bauer[11] whose patient lived 2½ years after aortic embolectomy.

In the American literature, we have encountered two instances of aortotomy for aortic embolism; one by Walker (reported by Lerman[9]) and one by Sherrill[6]. In neither was the circulation satisfactorily reëstablished. In Walker's case the embolus had been present for 40 hours. In Sherrill's case there was extensive injury to the intima due to the trauma which occasioned the embolus.

Aortic emboli have been removed by two lines of attack; one by aortotomy as in this case, and the other by seeking the embolism through an incision in the femoral artery. This usually entails an opening in both femoral arteries since the clot is fragmented and forced downward through the iliacs. In this case we chose the aortotomy because the right femoral had been successfully sutured a week before and we did not wish to jeopardize the continuity of the lumen by a second suture.

The operation itself was not difficult. Excellent exposure was obtained by reflecting the ascending colon inward. Of physiologic interest is the immediate drop in the blood pressure from 150/70 to 62/40 which occurred when the obstruction of the aorta was released.

Emboli lodging at points in the systemic circulation may originate from thrombi in a number of sites. Among the commonest sources of emboli are thrombi forming over atheromatous ulcers in the course of the aorta and more rarely its larger branches. These emboli as a rule are small, and unless they happen to lodge in an end artery are almost always incapable of producing any great harm because of abundant collateral circulation. However, the writer has removed a large embolus from the femoral artery in a patient whose only discoverable vascular lesion was marked arteriosclerosis.

Stasis is probably the most frequent cause associated with sluggish circulation in the recesses of the heart, particularly the auricles and their appendages. Mitral stenosis is a common underlying cause, although the emboli may form in any dilated heart, especially in the presence of congestive heart failure. Infection of the valves produces verrucous vegetations which are friable and easily detached. These may become large enough to occlude large vessels. Infarction of the heart muscle with necrosis of the wall and endothelium, such as may follow coronary occlusion, may be followed by mural thrombi.

In the writer's experience the cardiac derangement accompanying hyperthyroidism has been a frequent cause in the production of emboli. Here the stasis favored by the auricular fibrillation so often present, coupled with the frequent coincidence of other cardiac lesions, favors intracardiac thrombosis with subsequent discharge of emboli.

In a few instances emboli have been known to arise from thrombi in the pulmonary vein, but these cases are relatively infrequent.

Rarest of all, perhaps, is the fourth group, where the emboli arise from thrombi in the right side of the heart or the venous circulation and reach the systemic by the way of a patent foramen ovale.

The various emboli in the case now reported arose from a large thrombus in the left ventricle. This thrombus was too large to permit early organization and was, of course, constantly squeezed by the contractions of the heart, thereby affording ideal opportunity for the throwing off of numbers of emboli.

Bull[12] in a series of 6,140 autopsies found 243

cases of thrombosis of either heart or aorta or both. In 181 cases the primary thrombus was in the heart, distributed among the chambers as follows: the right side of the heart in 67 cases, the left side of the heart in 63, and both sides in 51. Of 15 cases of emboli to the extremities that he reports there was only one in which there were not emboli to other portions of the body. The lung showed infarcts in nine instances, as did the kidney, the spleen in seven, the brain in four and the intestine in one. Thrombosis in the heart is not necessarily followed by embolism. Death may occur before fragments have been swept away or the clot may be so compact as to become completely organized before fragmentation can take place.

Harvey and Levine[13] found 111 mural cardiac thrombi in 2,091 autopsies at the Peter Bent Brigham Hospital performed from 1913 to 1929. While 87 of these showed thrombi on the left side of the heart, only 31 occurred in the left ventricle alone. Thirty-one occurred in cases of auricular fibrillation. Of these six had thrombi in the left ventricle and three thrombi in the left ventricle only. All of the cases with auricular fibrillation and left ventricular involvement showed infarcts of the myocardium to explain the presence of the intraventricular thrombi, thus differing markedly from our case.

The heart in this case showed the rarest type of thrombosis. There was no evidence of either infarction or damage to the endocardium. The thrombus was not so much actually adherent to the endocardium as it was enmeshed in the strands of the columnae carneae. The auricular appendages were entirely free from thrombi, as were the other chambers of the heart. Microscopic examination revealed no damage to the heart muscle, and even underlying the thrombus itself there were only a few foci of very superficial endocardial necrosis. From these foci almost no organization had developed, suggesting that they were the result rather than the cause of the thrombosis. The only abnormality noted, other than the presence of the thrombus, is a moderate degree of moulding of the anterior wall of the left ventricle over the thrombus.

The thrombus itself was somewhat friable and its upper and mesial aspects irregular, indicating that fragments had been displaced from it and suggesting that in case life had continued still other emboli could be swept away from it with considerable readiness. On microscopic examination the thrombus was seen to be very largely made up of agglutinated platelets with a scattering of red blood cells, leucocytes and strands of fibrin, suggesting that it had been formed in streaming blood.

The problem of thrombosis in streaming blood is still a disputed one. On the one hand we have the belief that thrombosis occurs only in the presence of injury to vascular endothelium[2], and on the other hand we have the view of Aschoff[14] and his colleagues that the process is, at times at least, purely a mechanical one, and can occur in the absence of injury to endothelium, the platelets being piled up and forming thrombi much as the ripple marks are formed in sand by the waves and tide. The linear markings are not due to molding of the already formed thrombus but are due to the manner in which the platelets are laid down.

Aschoff[14] points out the two diverse factors that enter into the formation of a thrombus in streaming blood. The first is alteration in the rate and course of the blood stream, favoring eddy currents and retardation with resultant accumulation of platelets. The second is a change in the viscosity of the platelets that makes them peculiarly susceptible to agglutination with one another.

It is difficult not to postulate the presence of some minute or large injury to the endothelium favoring the initial adherence of platelets to the vessel wall, thus determining the site of the thrombus. Once such a nucleus has become adherent to the surface the rest of the process is easy to follow.

In the heart, with the abundant recesses offered by the spaces between the columnae carneae, there is relatively much greater opportunity for the formation of agglutinated platelet masses than in the vessels and a better chance for them to become adherent, by entanglement among the columnae carneae. These thrombi, however, are more commonly in the right ventricle than in the left.

Such a mechanism is probably involved in the case at present under discussion. This thrombus, by its character can be differentiated from the partly fibrosed parietal or polypoid thrombi, although possibly, had it not become fragmented and emboli set up from it, it might have gone onto the formation of such a type.

This case then must be considered as one of the rare instances in which a platelet thrombus has formed in the circulating blood in the depths of the columnae carneae, which favored the formation of eddies and stasis. Undoubtedly the cardiac dysfunction secondary to the thyroid toxicity was a determining factor.

The emboli were widely distributed both in space and time. Apparently the first embolus to have been thrown off was that causing an infarct in the left kidney. The next was apparently that lodging in the right femoral artery, subsequently successfully removed. Next may well have come a shower of small emboli to the right kidney. Then one was thrown off to the spleen, the next, and largest of all, to the aorta just above the bifurcation. This last was almost entirely removed at the second operation. The one which caused death completely occluded the right renal artery. This, judging from symptoms and the slight degree of necrosis shown by

the kidney, could not have been present more than twelve hours before death.

As remarked upon earlier in this report, this case illustrates the success in the reëstablishment of circulation that may attend the removal of obstructing arterial emboli. At the same time is shown the factor which is responsible for the bad ultimate results in so many cases that of subsequent multiple emboli. However, we feel that one should always make an attempt to remove the occluding embolus with the hope that further emboli will not occur. That such a procedure is justified is shown by the growing list of successful cases reported by Key and other Scandinavian surgeons. One should bear in mind, too, that gangrene of the affected area is almost certain to occur if the obstruction is not relieved.

SUMMARY

1. The causes underlying the occurrence of obstructing arterial emboli are reviewed.

2. A case is reported in which an obstructing embolus was removed from the femoral artery with successful reëstablishment of circulation until the lodgment of an embolus at the bifurcation of the aorta seven days later. This embolus was removed by aortotomy with successful reëstablishment of circulation until death 26 hours later from renal insufficiency due to a massive renal infarct.

We wish to thank Dr. Frank H. Lahey for his excellent advice and assistance at the time of operation and in the conduct of the case.

REFERENCES

1 Pemberton: Ann. Surg. 1930, 87, 652.
2 Welch: Albutt's System of Medicine 1910, 6, 691.
3 Hesse, E.: Arch. f. klin. Chir. 1921, 115, 812.
4 Wylde, C. F.: Canad. M. A. J. 1922, 12, 647.
5 Banovitch and Ira: M. Clin. N. Amer. 1928, 11, 973.
6 Sherrill, et al.: Tr. South. Surg. & Gynec. A. 1928, p. 48.
7 Hamilton: South. Med. & Surg. 1930, 23, 532.
8 Burrow: Brit. M. J. 1929, 2, 1002.
9 Lerman: J. A. M. A. 1930, 94, 1128.
10 Nystrom: Ann. Surg. 1930, 92, 498 (Discussion by Matas).
11 Bauer: Zentralbl. f. Chir. 1913, 40, 1945.
12 Bull: Acta chir. Scandinav. 1921-22 Vol. 54, p. 315.
13 Harvey and Levine: Am. J. M. Sc. 1930, 180, 356.
14 Aschoff, L.: Lectures in Pathology, 1924.

SOME CHANGING ASPECTS OF SURGERY*

BY IRVING J. WALKER, M.D.†

IT is with no misgivings that I meet with you this afternoon, since I come not as a modern Isaiah, but rather as a fellow practitioner given at times to meditation, who in leisure moments has conjured as may some of you, upon the future of surgery and the surgeon. These thoughts I have endeavored to correlate in this paper.

Should my ideas amuse you, I will be pleased. Should they interest you, I will be gratified, and if, perchance, they antagonize you, I shall consider my time well spent. In the latter instance, I shall conclude that I have hit upon a spot of vital interest, and may stir up a hornets' nest of comment upon some topic or topics concerning the medical profession at large. Pray do not take me too seriously as a prophet.

Historically, we of the present generation of surgeons can personally, or by word of mouth, recall from our predecessors the progress of surgery dating from about the middle of the past century. What an era to have lived in! To us it seems that no other period in the history of medicine has been so productive of progress, and we speculate as to whether there will ever be another like period in the world's history. Rest assured there will be! During this lapse of less than one hundred years, we find certain well-defined eras conspicuous for some aspect of surgical advancement.

Naturally, none of us can remember the time of the discovery of ether and its practical application to surgery. Some few must recall the surgeons and surgery of those days. Medical characters of those years appeal to me as being most interesting. It is a fact that the use of the general anesthetic and the experience gained by the surgeons of the Civil War added an impetus to surgery in these United States. Attesting to this fact, we find that the hospitals of the times were taxed to their utmost, resulting in additions to those existing institutions and the founding of many new hospitals in the larger cities of the eastern and middle sections of the country. From what we learn, the morbidity and mortality following the endeavors of the surgeons of that age must have been somewhat appalling in comparison with our present standards. Probably most of the untoward results were due to infection in its various forms. Did this stigma carry down to almost recent date in the minds of some of the older generation the idea that admission to a hospital was associated with a probable mortality? Nevertheless, surgery, relieved of the attendance of pain at operation by the use of a general anesthetic, received a boost.

Lister's promulgation of the aseptic principle was altogether too slow in being accepted, both in Europe and in this country. Again the old opposition to progress asserted itself, but without avail. The step from antiseptic to aseptic surgery followed as a natural course. It was not, however, until about the middle of the eighties that the aseptic doctrine could be considered as commonly practiced. Then a few venturesome souls had the courage to explore a hitherto almost forbidden field of surgery—the abdomen. Published reports of successful abdominal explorations crept into medical lit-

*Read before the Middlesex South District Medical Society, April 29, 1931.

†Walker—Clinical Professor of Surgery, Medical School of Harvard University. For record and address of author see "This Week's Issue", page 1171.

erature in increasing numbers. The results were surprisingly and startlingly good. To again use the vernacular, surgery received another boost, and this time a most auspicious one.

Though apparently the female of the species gained, she in no few instances has paid the penalty of much of the progress that followed, for tumors previously deemed inoperable were now removed with comparative safety and ovaries good, bad, and indifferent, from the pathological standpoint, came out. Along with some normal visceral contents, much diseased tissue was removed. Increasing in amount, this gradually led to a gross and microscopic classification of disease as relating to organs from the pathological standpoint. As a result, the pathologist, formerly a tolerated but not too welcome adjunct to surgery, gained a foothold. I surmise that he was not universally received with open arms by the enthusiastic surgeon of the day who reveled more in having individual patients alive following his surgical efforts than in the pathological entity of the tissue removed. Perhaps the surgeon could not stand the pathological test of his work and as a consequence suffered an inferiority complex. Unquestionably the appearance of the pathologist on the surgical stage must to some extent have tempered the overzealous surgeon. In common phraseology, the surgeon was now compelled to produce the goods to the satisfaction of the pathologist. Consequently some of the spectacular demonstrations were lost to the surgeon, but surgery itself was placed upon a more secure basis.

With the dawn of this century there seems to have appeared competition for recognition among an increasing number of surgeons. This competition demonstrated itself in the way of development of surgical technique. The literature of the time abounded in descriptions of new operations or refinements of technique as applied to operative measures already existing.

Perfection of surgical technique having reached a high degree of efficiency, we next discover a period in which the study of end results predominated the situation. This followed the technical era as a natural course of events and might be considered a demonstration of competition among surgeons. I sometimes wonder if education of the medical profession is the prime motive in much of the publication of statistical results. Surgical statistics with their many intricacies and wide margins of interpretation are so familiar to you as to require no repetition or discussion.

And now we are in the latest era of progress, that reflected by the spirit of investigation and research as applied to surgery. The stimulus for this line of study came primarily from the physiological and biochemical laboratories, secondly through the advance of knowledge gained by the research worker, and finally through our f ds, the internists, who were more alert in applying the products of research to the human than were the surgeons. Opportunities furnished by the World War seem to have added further stimulus to this line of surgical progress. From our present knowledge of surgery, what could be more rational than the comparative physiological study of the diseased individual and the normal? To an increasing extent we are able to produce pathology in the animal simulating disease in the human, and from the experimental results are better prepared to direct our efforts toward the treatment of disease in man.

The field of investigative surgery is a fertile one, and barely scratched, but for some time we have noted the fruits of surgical research. Witness the recent advance in surgery of the central and peripheral nervous system, the circulatory and respiratory systems, all primarily the products of the worker in the investigative laboratory. The path of progress of those devoting their lives to new lines of thought has never been rosy, their efforts have never been rewarded without some opposition. Today the research worker is receiving this customary adverse criticism from some of those of the old school. Let this worker be not in the least apprehensive, the reaction is natural. Were not his enthusiasm tempered, his line of effort would perhaps be evaluated greater than its actual worth, reflecting to the disadvantage of mankind. Let the surgeon always bear in mind that we should expect only a small but important percentage of the products of research to be positive findings applicable to the human. Surgical research has by no means attained the pinnacle of its deserved popularity. More and more space and personnel in medical schools and hospitals is being devoted to this line of study. When the apex of popularity has been reached, a level will shortly follow which can be considered as truly representing the value of surgical research. In the meantime, we must expect much duplication of study with all that goes with it by way of expenditure of time and money of those supporting this work. I see no reason for worshiping at the altar of surgical research, or of picturing the worker as surrounded by an impenetrable halo of mystic knowledge and supernatural intellect. His line is merely another effort toward surgical progress. However, research has justified its place in the surgical world of the present and it will be equally prominent in the future.

Thus I have briefly and in a sketchy way traced a phase of the evolution of surgery during the past hundred years, endeavoring to show that during this period incidents of surgical development have from time to time been received in a hyperenthusiastic way or by way of disparagement, yet over the years have re-

sulted in a gradually rising curve of surgical progress.

What of the future of medicine, and of surgery in particular? Within the last score of years a new school in medicine has been born. It is now rapidly growing and will survive and flourish. I refer to preventive medicine. The very name suggests its aim, prevention rather than the treatment of disease as its primary object. From all standpoints which involve the medical problem of humanity, one must admit that we as physicians fostering preventive medicine are on the right track toward the physical betterment of the human race. Accentuation of prevention rather than cure of disease is logical. Fundamentally, that which physically betters the race will eventually be reflected in its general betterment from all points of view, whether they be intellectual, economic, or religious. In furthering preventive medicine, the toes of some of us clinicians may be squeezed, but what of that if the world at large eventually gains! Furthermore, it is usually hopeless to stem the tide of inevitable progress.

The teaching of preventive medicine for the most part implies the practical application of certain doctrines to large bodies of humans, let us say those comprising cities, states, or nations. Prevention as applied by the individual to the individual would defeat the purpose of many of the aims of preventive medicine. In practical application, some of these aims of necessity involve control by legislative bodies. Undoubtedly, you have already surmised that I am leading up to the subject of "State Medicine." For the sake of avoiding a disagreeable subject I should prefer not to dwell upon the topic, but my conscience tells me that I should face facts and express my views as to what seems possible to me in generations to come. After all, should we as a profession assume the attitude of the ostrich in blinding ourselves to a figure, looming on the horizon, which vitally concerns us and those of our profession to follow?

In order to define more adequately the present-day situation, I prefer the term "corporate medicine" to the more common phrase "state medicine", although I fully realize that some aspects of the present situation are already closely allied to legislative control. Corporate medicine may be voluntary in the case of certain bodies concerned with the health of those under their guidance, or, as in the case of true state medicine, the voluntary aspect loses its entity and those concerned must submit to legislative bodies with necessary laws. Broadly speaking and for various reasons, the first group could easily be absorbed and assimilated by the second group, should this at any time be deemed expedient. And, after all, may it not be well argued that since health is vital to us as a nation, would not state control of this health be logical and justifiable? Mark you, I am not prepared as yet to go on record as advocating or opposing state medicine. My aim today is to endeavor to place before you some facts that augur the possibility, to say the least, of future state medicine in a rather highly developed way. Much as we have heard state medicine discussed pro and con, it does seem to me that unobtrusively it has crept into our midst until we now have it in one form or another and in varying degrees of development. Our excellent health departments of towns, cities, and states are unquestionably a type of state medicine. In insurance for the working man with organizations to administer the financial side and with the State as an intermediary body in disagreements involving the insurer, the insured, and the physician, and with a medical personnel more or less permanent as a staff, we have, in my opinion, a form of corporate medicine with, if you wish, a decided tinge of state medicine. The increasing number of state and federal hospitals can again be interpreted as a demonstration of state medicine. Witness the 150.4% growth in the number of state hospitals since 1909, with present hospital facilities for 405,309 patients. Again, during this same period, note that the number of federal hospitals has increased 305.6%, with accommodations now for 63,581 individuals. With the increasing bed capacity of municipal and philanthropic hospitals, and with growth in the number of health units, all vying with each other for patients, regardless for the most part of any condition concerning the individual other than that he may be ill, we have another type of corporate medicine purely voluntary to be sure when applied to those now seeking its benefactions, but potentially possible integral units of future legislative control of medicine.

The groups above mentioned at present serve a considerable percentage of our population. Their ramifications are already too numerous to mention to say nothing of the opportunity to speculate as to the scope of their future activities, especially as regards their possible relationship to future state medicine. Of one fact I am certain, namely, that unless we as individuals or as groups can deliver medical service equally as good as that rendered by corporate medicine, for the same or less financial cost to the laity, state medicine will justifiably flourish. There is little need to argue about the cost of caring for the sick in the case of private patients. Such cost to the private patient will always follow the trend of the cost of living in general. However, the argument of the public, right or wrong, that the present cost of medical service is greater than they consider justifiable may be a factor influencing the laity towards state medicine.

Why, then, have we not state medicine in its infancy at present? Should it grow in popu-

larity and finally become definitely established, it will not do so without all the influence of political flavor, good and bad. During its perfection, it would seem reasonable to anticipate that the present rather high ideals relative to the practice of medicine will temporarily retrogress. Nevertheless, if state medicine is to survive, it must attain a higher plane than we now offer under our present system of medical practice.

I believe the world is awaiting the answer of the medical profession as to the desirability of future state medicine. Some representatives of the lay press have long since gone on record in its favor. This favorable committal may not be based on deep analysis of the situation. It may well be interpreted as being a demonstration of a superficial viewpoint of a socialistic tendency as applied to the practice of medicine. Before long, we as a profession will have to commit ourselves. We cannot much longer assume the position of procrastination in discussing thoroughly and openly the merits of state medicine, to say nothing of the desirability of arriving at a verdict. If we are in favor of state medicine, let us go on record to that effect and formulate plans for the best working of the project. If we are opposed, let us say so and again let us organize so that our campaign for the future stand against state medicine can be carefully and systematically laid. If a compromise measure can be conceived such as will adequately serve both the medical profession and the laity in the future, well and good. However, I agree with a recent writer that compromise can be defined as something that satisfies no one, and which merely postpones the inevitable day for the final answer to a problem. Compromise on any debatable subject is often an admission of the weakness of the policies and arguments of the parties involved. Silence on our part will later be interpreted as being not unfavorable to state medicine. Silence also does nothing constructive in the solution of the problem.

Granting that it is to come, even as a compromising proposition, I see a thorny road ahead for state medicine. As I have already intimated, the practice of medicine in general would for the time being deteriorate, due to the fact that its control would have the tinge of politics in determining policies and a personnel. The present commendable trend of medicine as demonstrated by the competitive and investigative spirit would naturally be minimized because of the financial independence of those engaged in the practice of state medicine. A dark age in medical progress would follow. However, the light of progress of the medical world would be temporarily dimmed, but not extinguished. A reaction would be inevitable. The world would soon recognize that even if the project as a whole were sound, the factors engaged or interested were weak, and the world, being more or less medically-minded, would then be roused and come to the rescue. The laity, through endeavors to raise the standards of medicine, and those inclined to enter the field of medicine particularly for scientific and philanthropic motives, would combine to see that better medicine was produced. Then we would have the acme of perfection in safeguarding the health of the world. Perhaps such cannot be accomplished until the philanthropic viewpoint of life is simultaneously accepted by all departments of business, the professions and humanity in general. This may be visualizing an idealistic millennium.

If elaborate development of state medicine does not come, or in the event of its coming does not survive, then those of the profession in generations of the future will look back upon the phase of its discussion or trial as a passing incident hardly worthy of even the slightest consideration. Such is the reaction of mankind to failures.

Personally, I am fatalist enough to believe that the world must progress and that which is good for progress will survive, and that which is a hindrance will succumb. I may be religious enough to think that we mortals have very little influence in deciding the issue, but through some supreme leadership we will eventually see the light in differentiating what is good from that which is bad for the world and govern ourselves accordingly. State medicine may be good or bad for the world; I do not attempt to predict which. However, I have no fear but that if it is good it will establish itself, and if it is bad it will fall by the wayside as have other unfavorable projects in world development.

What about all this influence upon surgery and the surgeon of the future? The law of supply and demand, or perhaps more properly demand and supply, has always regulated production in this world, whether this production is of commodity or man power. Generally speaking, when the demand is great enough there is little to worry about concerning the source and the probabilities of the supply being adequate, in fact in most instances demand has resulted in overproduction. Just how may this apply to medicine in the future, and particularly to the physicians themselves?

With preventive medicine almost without limits as to its possibilities and accompanying it a lessened incidence of disease, with consideration of the broadening aspect of corporate or state medicine, one cannot escape the fact as time goes on and these activities become better established, the numerical demand for physicians must diminish. Let us hope that at the same time the professional qualifications of those engaged in the practice of medicine will grow better and better. Even within my recollection I can quite plainly note the approach

of the practitioner to medical problems tending more and more toward the scientific. Especially does this manifest itself among clinicians in endeavors toward diagnostic accuracy and interest in end results. It is quite possible that of late the so-called art of the practice of medicine may have suffered somewhat. On occasions I have surmised that some of those successfully practicing the art of medicine may, through this same art, have thrown a smoke screen about their shortcomings in the scientific practice of medicine. I do not mean to decry the art of the practice of medicine, but I do believe that the scientific mind has the more logical approach to the treatment of disease. Competition for survival of those engaged in the practice of medicine would of itself eventually result in better practitioners, leaving aside the probability of gradual improvement in primary training. However, like all evolutionary changes, one must not expect the process of improvement to be constant. World-wide conditions, economic and political, have influence upon progress. Such influence may temporarily be detrimental to progress.

Therefore, competition, preventive medicine, and state medicine could, in a cumulative way, influence the tendency towards reducing the number of clinicians necessary for the care of the sick.

What of the surgeon of the future, his training, his geographical field of endeavor, his scope, and his financial return? Before this consideration, it would seem fitting to analyze existing conditions as they apply to those engaged in the practice of surgery. At present we have three types of surgeons, namely, the general practitioner who acquires his surgical clientele for the most part from his general practice; the general surgeon practicing strictly surgery but not limiting to any extent his field of surgery; and finally, the specialist within the broad field of surgery who is confining his endeavors to some individual system or lesion.

Geographically, these three classes are distributed roughly as follows: The activities of the general practitioner engaged in surgery are now confined to suburban cities, towns, and rural communities. In the days before the multiplicity of local hospitals and increased transportation facilities, he was a most valuable member of the community as a surgeon. His life has been a busy one with very little time for study. As a consequence, surgery has leaped beyond his power to keep abreast of the times. The community formerly accepted his morbidity and mortality records as almost inevitable and justifiable, in which conclusion they were to a great extent correct. What has happened during the last two decades? Local hospitals are for the time being sufficient in number and bed capacity. Thanks to such organizations as the American College of Surgeons and the American Hospital Association, they have attained a high degree of efficiency, so much so that the surgeon of the city no longer hesitates to patronize them. Again, increasing transportation facilities have been the means of bringing to these hospitals surgeons of repute from the larger cities. As a consequence, the suburban and rural inhabitants are learning that better surgery can be obtained in their own communities than can be offered by the general practitioner. Furthermore, there is now a definite trend for the student thoroughly trained along surgical lines to leave the city and seek opportunities away from medical centers. Competition therefore has about ended the future prospect in the field of surgery for the general practitioner who has not had an excellent primary training in general surgery. Such general practitioners of today should see the handwriting on the wall and devote their energies toward refinement of diagnostic skill and treatment of medical diseases rather than toward perfection of surgical technique. The position of the general practitioner is built upon a foundation so fundamental and secure that we need not worry as to his future place in the medical world. The basis for this foundation is personal contact and service so intimately related to the home as a unit as to be impregnable to any serious and permanent encroachment by the specialist, unless by chance he weakens his position by competing with the specialist.

The numerical requirements of a given locality for surgeons can be roughly calculated. Working intensively as we all should in these days and in the future, it is probably true that a single surgeon should care for the surgical needs of 15,000 to 20,000 people. I mention this as a warning lest in years to come there be an overcrowding of the surgical profession in the smaller communities, as I believe the case to be at present in the larger cities.

What of the future surgeon in the medical center? Here again the field of activity in surgery is changing, and this through demand of the public, with a resulting specialization within the field of surgery. No one can be criticized for seeking that which is best, especially when it involves the questions of health and a considerable expenditure of money. Which one of you would think of entering an ordinary mercantile store offering jewelry to commit himself to the expenditure of a considerable sum of money for a valuable piece of jewelry, when he knew that a jewelry expert existed nearby who specialized in the line in which he was interested? Not that the jewelry, speaking of the individual piece, might not be satisfactory in the first instance, but on the percentage of chance the product and service of the second would probably be better. No person desires to take the least chance with large amounts of money or with his health. By such comparison, we

can liken the general surgeon of today and tomorrow to the surgeon concentrating within the field of surgery. The public demands the acme of specialization. You well know that hospitals are organizing within themselves special clinics within the fields of medicine and surgery, again fostering the height of specialization. Thus I am led to believe that, so far as medical centers are concerned, the general surgeon has seen his heyday and that the recognized surgeon of the future in such localities will be a specialist within a specialty.

One may argue that it is barely possible this is not best for humanity. Time alone will solve that problem.

The training of the future surgeon must undergo considerable change. Competition in the individual locality in which one is to locate must be the influencing factor in determining the extent of one's training in approaching a surgical career. In general, the more intensive the competition, the more comprehensive should be the fundamental training. The general surgeon of the small local community will not require the training that will be expected of him who is to survive in a medical center. I believe that at present and for some time to come the minimum standard for one who is to practice surgery must, in addition to the medical school career, be that of an intensive surgical training of approximately two years' duration. That, plus a surgical residency, is desirable. Further preliminary training, while by no means a waste of time and energy, is not essential to those who are to practice in suburban locations.

The picture is somewhat different with the surgeon who expects to become conspicuous in a medical center, especially if he is to be a teacher of surgery. His approach to surgery should be through a laboratory training of considerable duration in biochemical and physiological study in its relationship to surgical problems, supplemented if possible by time devoted to pathology. Following this rather prolonged preliminary training, he should be prepared to become a surgical interne, and later complete his training by serving as a surgical resident.

Such a program means years of preparation, entailing large financial expenditure. The net result would be the production of a few surgeons demonstrating the last word in preparation. The number would be limited, but the quality produced would be of the best. For various reasons few could attain this goal. The financial wherewithal for such a program is a problem which we need not discuss here. In the meantime, some of us will have attained various degrees of perfection as surgeons concomitant with the times and the demands of our geographical locations. Our value to the world as surgeons will be properly graded by our fellow workers and our return in honors and finance will be undoubtedly just and commensurate with service rendered.

In world affairs we have recently passed through a stage of inflation, with its many vicissitudes of luxury and overindulgence, if not dissipation. The tide may have turned so that we may now be entering a period of conservatism, the ultimate trend of which will be a more rational and normal life than has been enjoyed by some of those of the present generation. In the future, there may be a lessened financial return for our endeavors. If such be the case, let us gracefully adapt ourselves to the situation and govern our standards of living accordingly. The cost to the public of being sick and the financial return to those caring for the sick must be in accord with the cost of living of the time. That the standards of living over a period of time are bound to improve, I have no doubt. That our ideas and our ideals of the standard of living may from time to time change, I am equally sure. In the meantime, come what may, that which is best for the world is best for me, no matter if in a superficial way I may seem to be hurt temporarily. There is no need that I as an individual should consider myself a martyr to changing conditions. Over the final destiny of world affairs, we humans have perhaps less control than we sometimes lead ourselves to believe. After all, the greatest satisfaction in life is the satisfaction derived from the inherent knowledge that in our hearts we can truthfully say that from day to day and from year to year we have honestly and faithfully rendered humanity the best we knew how.

"We live in deeds, not years; in thoughts,
not breaths:
In feelings, not in figures on a dial.
We should count time by heart throbs.
He most lives
Who thinks most, feels the noblest, acts the
best."

WORK AND PURPOSES OF THE INSTITUTE FOR MENTAL HYGIENE*

BY E. D. BOND, M.D.†

Mr. President, Members of the Massachusetts Psychiatric Society:

THE honor of being invited to talk to you I can fully appreciate because I have had many ways of keeping informed as to the place occupied by Massachusetts in psychiatry. First, of course, my knowledge came from the inside. It is here, in this city, that Dr. Cowles and Dr. Tuttle first taught me what psychiatry was and it was here, on this spot, before the hospital was built, that I used to see the blueprints with Dr. Frost and Dr. Southard; then, when the hospital was opened and Dr. Southard brought Dr.

*Presented before the Massachusetts Psychiatric Society, Boston Psychopathic Hospital, December 12, 1930.

†Bond—Professor of Psychiatry, University of Pennsylvania. For record and address of author see "This Week's Issue", page 1171.

Adler here, Dr. Southard moved me about as one of the pawns on his chessboard and put me out at the Danvers State Hospital, where I had the good luck to work under Dr. Kline in the first year of his work in Massachusetts. Now, of course, from the outside, I can see that Massachusetts is the leader of the states in many psychiatric fields and especially in the application of hospital psychiatry to the community in general. It is really a very special aspect of the application of hospital psychiatry to everyday life that I want to present to you tonight, leaving more questions asked than answered. It is a relief not to have to give to you the reasons why psychiatry can, and ought to, be generally applied.

Now a word as to the name of our institution in Philadelphia. In the pamphlet you find it called, "Institute for Mental Hygiene." We have dropped that name since the pamphlet was printed. We are now calling the place, for want of anything better, the Institute of the Pennsylvania Hospital. We have made that change for this reason: We have business men who come out as patients and say, "The clerk in my office, or the telephone operator, is saying I got a message from the Institute for Mental Hygiene, and the only conclusion that the office draws from that is that I have some mental disease." We have definitely found that, in spite of all the propaganda for mental hygiene, in Philadelphia as well as all over the country, there are some people who do not look at the phrase, mental hygiene, as we do. The word hygiene is all right to them, but mental is still all wrong, so that we have decided to use the phrase mental hygiene as a descriptive term, but never to use it in dealing with the uninformed public. Many names have been suggested in the mail and in other ways. The first day we opened, a letter addressed to Kirkbride's Inebriate Asylum was handed in.

The building that we are now using as the Institute is at 49th Street and we are finding that, in the popular mind, Kirkbride's has been moved from this place to the Department at 44th Street. As a matter of fact, as we moved into a new building here, we dispossessed male mental patients who were in the old building and placed them at 44th Street, so we had both men and women in the same department. Meanwhile, we took the nurses from 44th Street, from the Nurses Home, and moved them over to 49th Street, so at present, at 49th Street, we have a new building, the Institute, connected with an old building which is essentially the Nurses Home. A department store has been sending out packages just lately with another suggestion—the name of the patient followed by "just gentle hygiene".

The relationships of this hospital are complicated and there is nothing like them anywhere. They have grown out of the Philadelphia situation and out of a good many things that are not possible to duplicate in Boston. Closely associated with this new development are colleges of three types; a women's college, a men's college and a co-educational college, and the preparatory schools that are connected with these colleges. There is also associated an Out-Patient Department, which is at 8th Street, with a General Hospital. This Out-Patient part of the General Hospital is run rather independently of any Institute work, but there still is an association and the same physicians are doing both jobs. The Child Guidance Clinic is at 17th Street and is closely associated with our work. The University is at 34th Street and out in the country is a convalescent home, a pleasant building that will accommodate twenty patients, at the most, on a farm.

An interesting part of the work is in the Graduate School instruction for the University, where the class in pediatrics has appointed one of our staff as its instructor, not in psychiatry but in mental hygiene. This brings the instructor entirely into the Pediatrics Department and keeps him out of the Department of Neurology and Psychiatry. In the Under-graduate Department all we are doing is to study the situation; yet we have accomplished something in providing a kind of peaceful penetration of the medical, surgical and pediatric teaching at the University in the first three years. Roughly, it is our plan to share the clinical lectures in psychiatry, in the first few years, with the other departments and, generally, we are aiming to take psychiatry away from its neurological connections and form new connections in medicine and pediatrics.

The new building is T-shaped. It is rather curious that these buildings were put up by Dr. Copp almost entirely and yet, they are used by other physicians who have different ideas; still the building is proving to be ideally constructed for the new purposes (and I have no doubt it would be good for the old purposes if we should ever try it). The general arrangement in this T-shape is to have one wing an Out-Patient Department, with a separate entrance which is commanded by the Social Service Department. On the other wing is a set of private offices furnished by the physicians on the staff for their own purposes, where they can see their own private patients, using the resources of the Institute, or not, as they wish. At present, because a physician is given an office here for the morning, he does work in the Out-Patient for the Institute in the afternoon, and the physicians, who are practically visiting physicians, are paid no salaries.

For the Out-Patient, so far, appointments have been made only for an hour at a time. Many appointments have been made for evenings and Sundays, because the whole purpose of the work is to help people who can keep on with their jobs.

The wing that stretches is the wing devoted to

dental offices, record rooms which are in touch with the wards and Out-Patient Department by pneumatic tubes and, finally, the X-Ray Department. The latter is connected with laboratories, which are within the walls of the old building.

The Franklin School is a one-story building, in the shape of a letter E, which has a girls' dormitory, a boys' dormitory, waiting rooms in front, and, in the central section, a school-room, occupational therapy quarters and playroom. The service buildings are off at one side, and were built before this new building; so again the new building could be planned for the direct use of patients. I will have to ask you to move up one floor, where you will find one wing occupied with physiotherapy apparatus, continuous baths in very spacious rooms connected with ample porches, an independent unit of itself, well sound-proofed. The opposite wing is filled with ordinary rooms for patients as well as the wing running back. These rooms are rather luxurious and it is the aim of the hospital to try to rent them at prices which will carry a good deal of the free work, just as the private patients of physicians are meant to carry a good deal of the free work of the Out-Patient Department. On the second floor, we have connected the new building with thirty-two rooms of the old building—our Rosenwald Wards for patients of moderate means. The rooms are fully adequate, but all plumbing for the ward is in one modern bathroom. The windows throughout the second and third floors, the two floors being identical, are protected simply by a brass fly-screen. They are colonial windows and the partitions on the screen exactly fit the partition on the window, so that from the outside there is no suggestion of window protection, and from the inside there is a suggestion of window protection only at times. We have had (as you will see) some fussy patients in this building and critical visitors. No one, yet, has criticized this simple protection of windows. One or two patients, who have remarked on the windows being protected, have had explained to them exactly the reason why. The doors are wide open. There is a very broad stairway that leads down from the second floor, and we have other stairways leading out. No door has ever been locked and there is nothing to prevent the patients from walking out. The question of locks on the doors was raised about three weeks ago. I asked two or three of the doctors and nurses, and not one of them had thought of the matter. I went up and looked at the locks on the patients' rooms, and found that Dr. Copp had put on what seems to me a remarkable apparatus. A lock, practically a Yale one, which is above the doorknob, can be turned by the patient so that she can lock herself in the room by throwing the bolt. On the outside that same bolt can be thrown by the nurse's key in the case of emergency. If the nurse should come and lock the patient's door with the key, the patient could unlock it simply from the inside.

Of course, this Institute is not under license. (The Department is.) The procedures are much like those of a general hospital except that it doesn't have the smell of a general hospital and it doesn't put the emphasis on physical treatment. It is a question how much we should stress the dissimilarity to a general hospital by emphasizing the lack of interest in the somatic things. Incidentally, in speaking of locks and windows, the elevators are automatic and the patients run the elevators all they want to.

The top floor, covering only the front part of the T, has roof gardens and rooms for occupational therapy. I think there is no question about the attractiveness and the restfulness of the building and we are indebted to the architect for that.

Now as to the personnel. There is the Director. The word "director" is not quite the right one, and I felt uncomfortable about it until I noticed the remark of Mr. Ramsay MacDonald when he said that the British government "rides the waves and lasts out the storms". That is just what the Medical Director does. The Chief Resident is the person who, of course, has to pick up all the scattering threads of the work that is done at the hospital, and under the Chief Resident is now one interne; there will be a new interne added for each of the wards as they are completed. There are a number of visiting physicians. These are physicians on the regular staff, who are given the offices and in return devote half a day's work to the Institute. These visiting physicians refer patients to the second and third floors, and there consult with the Chief Resident about their care, just as a visiting surgeon would consult with a Chief Resident of a general hospital. It results that, of course, one of these visiting physicians knows only about a fraction of the patients on the ward at any one time. He is familiar with his own patients and doesn't have any responsibility about the patients of another visiting physician. One or two physicians have been put on an honorary staff. As to a consultant staff, we naturally turn to our own general hospital or the University Hospital, with both of which we have affiliations.

Nurses are presenting a grave problem. We have the best chief nurses that we can ever hope to get. Whether they can get enough nurses with the liberal education and especially the wide interests that are needed to manage the kind of patients we are taking, is a question. There is no training school connected with the Institute. That was intentionally arranged so as not to present any embarrassments in making quick changes. There is, of course, a training school connected with the Department of Mental Diseases, five blocks off.

The Social Service Department and Occupational Therapy are finding it necessary to bring in unusual people to help. We have a Belgian woodcarver; we have a man who makes a specialty of interesting people in reading; we are trying to add to our ordinary occupational therapy activities the provision of hobbies for the patients who have reached the retiring age and who haven't enough interest to carry them through.

There is a school teacher for the Franklin School and a house mother with her assistants.

Some personnel can be shared with the Department for Mental Diseases to tremendous advantage. The psychologist, the laboratory director, the business director, and all their assistants, work for both departments and, of course, that cuts down expenses greatly.

As to the costs. We yet do not know the exact cost of running the Institute and the accountants are still working on the figures. The general idea is that the private patients and the free patients will tend to balance each other in the matter of cost in the ways that I have already indicated, but that the cost for the patient of moderate means should be very carefully studied. It is taken for granted that the patient of moderate means wants to choose his own physician, wishes just as much privacy as he can get, and requires every necessity for treatment with no luxury. It is really an experiment, much as is the Baker Memorial in this city, and we will need to call in very expert accounting to find out how much it now costs to look after such patients. Of course, psychiatry is the most expensive specialty for the patient. The rates in the Out-Patient Department are $10 for the first visit and $3 each for subsequent visits. That is our guess at a fair rate for the patients of moderate means. The rooms are $6 a day, which does not include professional care. The physician's bill and the nurse's bill, if any, are extra but are known to the hospital accountants.

Finally, let us consider the patients, or clients, or, as Dr. Haven Emerson suggested, devotees. I cannot, in the following discussion, separate the out- from the in-patients. Our scheme for out-patients is that appointments are made for a full hour, are repeated as often as necessary, and occupational and physiotherapy are as available for out-patients as for those who live in the hospital. The net result is that the out-patients may absorb more of the strictly psychiatric attention than the in-patient. There will be an opportunity to make some very interesting comparisons as to whether, with the right amount of psychiatric and occupational attention, the patients who have to struggle along in their own homes are going to do better or worse than the patients who are getting about the same amount of professional attention in the House, who are then relieved of the immediate strains and stresses of the family situation. Of course, the question comes up, why hospitalize at all in some of these cases? The relief from the home conditions is an immediate answer. And we have found that an adult or a child is thoroughly studied in the Out-Patient Department but is "all dressed up and nowhere to go". The proper place to carry on the intensive treatment for the next weeks, or months, is lacking and it is our hope that this Institute may fill in that gap.

The first large group of cases is made up of the early, or mild psychotic cases. At present, there are in neighboring rooms a hypomanic patient and a depressed patient. The hypomanic clutters her room with all sorts of extravagant purchases, wakes up at three or four in the morning to talk to her nurse, but does not wish to leave her room, and has no delusions that we can find. The depressed patient has momentary periods of confusion when things, as she says, "go too fast for her". She has no delusions unless the idea that she ought, by an effort of will, to pull herself out of the depression can be called a delusion of self-accusation. Both she and the hypomanic patient next to her recognize the existence of an illness in themselves, have no wish to leave the Institute, and are presenting no problem whatever to any other patient. It has been almost reassuring for us to have this familiar type of patient to deal with by a technique of which we are sure. Our experiment has re-demonstrated the inaccessibility of the manic-depressive patient. We are clear that there is not the slightest chance in the world to modify the swings of its phases.

Now, the schizophrenic patients. These have, naturally, been received only in the formative, phantasy stages and in the Out-Patient Department. Patients who would not have come near a hospital where there was any suggestion of commitment have come and have talked freely to the psychiatrists and a number of them seem to have been greatly helped. A patient, who is now talking to one of our physicians twice a week, can be said to find in the physician a real asylum. He is saying such things as that, when he was a child of seven, he thought he was two people, that he swallowed a peppermint baby and had indigestion. He has thought of curing a homosexual fear by joining the marines.

Then there are the toxic patients. We had hoped that general hospitals would send certain toxic psychoses to us, but they have not done so, and we still have no experience in knowing what we could do with our special equipment for such cases, or how much delirious states would upset the morale of the wards.

We have received a few inebriates when they needed no restraint. They have fitted into the Institute well enough, but it is doubtful whether they were benefited. In the Out-Patient Department we have cases presenting interesting studies in the beginnings of epilepsy.

With the foregoing groups we have been on

rather familiar ground, but I want to bring up a group which is much more difficult to manage in the usual hospital situation, simply because it is much more normal. I might classify this group as patients showing conversion and projection symptoms. One such patient is a girl from a college, who has just gone through two weeks of overactivity and inability to study, sleeplessness, and has spoken of the onset, course and outcome in terms of her roommate. Another patient came in to say, "I am worrying about the sexual habits of my brother." A third case was very much like Freud's Elizabeth von R, in 1892. For a year she had had pains in the legs and walked badly. The emotional causes were not far below the surface, and after several weeks' treatment, she writes, "My symptoms are gone, but I wonder if it is not harder to face reality without the symptoms than to get along with them as I used to do."

A fourth case was a patient at a general hospital near us. She had abdominal pain thought to be caused by gastric ulcer and a gastric analysis bore out the diagnosis. She was operated on, and in the operation everything was found to be normal. She was sent over to the Institute, where a mental origin for her pain was found. The physicians came the next morning to find that this patient had turned to Christian Science, which gave her a chance to admit that the whole thing was mental and yet not face it. The patients in this group are assigned to different physicians, who are free to use their own techniques, which vary from a psychoanalytic procedure to short-cuts and to suggestion.

Personality difficulties make up another loosely allied group. The principal of a school has come in to have us investigate her attitude toward her brother and toward a friend with whom she lives. She has managed things for this brother all her life. She has been considering giving up two years to acquiring a Ph.D. degree, but she asks whether she had not better spend her time learning better control of her emotions. Her situation reminds me of the saying of Dr. C. Macfie Campbell that the "college graduate should go to a sanitarium to complete her education".

Many problems are brought to us regarding the adoption of children. Should a certain husband and wife adopt a child? Will the Institute examine the child for adoption?

Owing to an agreement with the Child Guidance Clinic, we are referring cases of children under 13 to that clinic. There is left to us a consideration of the problems of children in their teens.

Now, of course, in the separate one-story building which houses the Franklin School, we are dealing with children under 11, in residence, ordinarily, for a year or more. These children show behavior disturbances following encephalitis or other brain lesion. An experiment, lasting five years, was completed last summer and a second experiment begun. In the first experiment, the boys and girls were separated; their care was in the hands of many physicians and trained nurses who rather emphasized discipline, although in a very understanding way. The results of this experiment remain good in about one-third of the cases. In the new experiment, the boys and girls are together, under the care of one physician exclusively, in charge of a foster mother, who emphasizes freedom. In the second experiment, social service workers were available, who were absent in the first five years.

A nursery school in which the psychologist will be much interested is being formed.

"Since the psychologist has successfully developed an industrial service based on personality and quantitative study of personnel in industry, it seems but fair and wise that the Institute capitalize the value in this work. It is proposed that an arrangement be worked out whereby the Institute can make personnel counselling a definite part of its functioning. An arrangement should be made for the Institute to be compensated from a portion of the fee charged for all the work that comes directly through the Institute and its efforts. In this connection a procedure might be worked out whereby every one of these industrial cases is also seen, even if briefly, by a psychiatrist." The work of the psychologist, of course, in this direction is hard for a physician to judge, but the large firms by which the psychologist has been employed want more of this service and feel the work is increasing.

The college cases are being handled, primarily, as consultation cases, the medical department of the college taking the place of the family physician. A resident physician at one college has taken a year's psychiatric work with us and, if it is possible, keeps the student away from the psychiatrist—away from the idea that her trouble is severe enough to be referred. However, in cases where matters have needed the most careful consideration, or where the student has felt that the college doctor was part of the administration, there has been a call for the psychiatrist; students have come to the Institute overnight and left without seeming to find anything out of the ordinary in the situation. The day before yesterday, for instance, a college student came to talk over some beginning ideas of reference and the use of heart disease as an excuse for falling below some very high standards. She stayed overnight and left yesterday, after making arrangements to spend all of the Christmas vacation at the Institute. There was nothing for her to sign on entering or leaving. She dislikes the thought of trying to change her connections, but she gives no attention to staying at the hospital.

Patients who have been unusually fatigued have come out either for a week or week-end and have been allowed the chance to talk over with

the psychiatrist the question of the value of the activities which have led to their fatigue.

Now for some straggling comments. There are some patients who insist upon consulting the psychologist instead of the psychiatrist for the reason that they consider that they are normal. They have caused no difficulty because, apparently, our psychologist can handle them satisfactorily. The question has been raised as to whether the social service department could handle some patients who did not see the psychiatrist but whose cases could be brought to him for consultation. Some of them refused to see a psychiatrist and have been caught up by the social service in the first interview and, so far, their treatment is going on well.

The question arises whether a number of doctors and other workers can efficiently be engaged on the same case. Those workers who have been used to dealing with psychotic patients are apt to say "yes" to this question and, of course, those who are interested in psychoanalysis tend to say "no". However, the tendency of the Institute, dictated by rather practical reasons, has been to have only one physician handle a case. We see a limit to this and unless the work for each patient is going to become tremendously expensive, we shall have to develop some system by which the care of the patient can be shared by a number of people.

We have one wing for the group of physicians wishing to emphasize that the Institute is not interested in the organic case; that the psychiatrist should not be the one to seek out the organic factors, which should be left to someone else; that it should be stressed that the psychiatrist is interested in the mental side of organic illness; and that the psychiatrist is not the one to use drugs or physical measures in treatment. We have just refused one patient, as an experiment, and it is somewhat doubtful whether we should have done so. This patient had been examined at a good University Hospital and no somatic factors found. The patient denies that her symptoms may have a mental origin. The question arises, shall the Institute temporize with such a patient? This case we decided not to temporize, but we wrote back to the referring hospital that when the patient was ready for treatment, we would attempt it.

There has been a tendency, however, to agree that organic cases on the ward, treated by one physician, will not interfere materially with the care of psychogenic cases treated by another physician. Too many functional cases treated by suggestion and drugs and authority would certainly be disturbing elements on the ward.

It is rather curious that a patient, to get into the Institute, practically has to present a certificate of sanity. Many patients refused by us as residents go at once to hotels, where they are cordially received. If some Pied Piper would lead out of the hotels at Philadelphia and Atlantic City all the mental patients, it would greatly reduce the more permanent population.

Self-referred patients have been among the best that we have had. Those referred by doctors are balanced; fifty per cent. tend to be good and the other fifty turn out to be dementia praecox cases. Some come with the request that inebriates be cured by proxy. It has been possible to encourage some wives of temperamental men to organize their homes to protect the interests of their children.

Records suffer in this new work. In the record of any patient there may be clinical nuggets of some one side of the patient, but it is difficult to collect much routine information and many patients have been referred by physicians or hospitals, who have already been given a complete laboratory and physical examination. There are some unusual contrasts.

We have taken in one dementia praecox patient because she had been at the Department two years before, in a paranoid dementia praecox condition. She came back and asked advice about the return of some ideas of reference. She went to a room for two weeks, her behavior was perfect, and she left to resume her work. At the same time, a psychasthenic patient, who has not had any trace of delusions, wanted help and entered the Institute. She so resented the contrast of anything like a father substitute that she intruded upon other patients and was a nuisance to them. We are now refusing to receive her back into the Institute.

Often the most normal member of a family is the one who appears to ask for help. Naturally the abnormal ones are afraid to come. Once or twice the normal one has been persuaded by his abnormal brother and sister and family that he is the one who is sick, because he is the one who is out of step.

In beginning this work in September, we opened the second floor only. The second floor is intended for women, and the third floor for men, but, as we were filling up, we took both men and women in on the same floor and we have seen so many advantages from this that it seems much more beneficial to take both sexes on the second floor and then divide them by the medical condition rather than by sex.

To sum up the things that are unusual, although I know how familiar you are with all these facts, I can say that to the out-patient the unusual thing that we have to give is *time*, to the in-patient a *place* that is comfortable and free from unpleasant associations, and to the patient of moderate means we try to bring *self-respect*.

In conclusion, I want to comment on our original idea—that we should, in local terms, apply to normal people at 49th Street the lessons we learned at 44th Street, or more generally that at the Institute we should apply to everyday people what we had learned from psychotic pa-

tients at the Department. We have found this not to be so simple as it sounds. To be sure, we find the same mechanisms at work in psychotics and everyone else, which is a help; but the organization of treatment which works well with psychotic patients in a hospital breaks down in our new effort. The tendency is to disorganization, to variation of procedure, to individual effort and to individual responsibility, which makes it hard for the experienced physician to share his work with a younger man. Time works against the physician instead of for him. He cannot wait for the phase to run its course, but is pressed by the need of saving the patient's time and money. The patient must sacrifice and work hard and at the same time be free to suspend treatment at any moment. We look upon these tendencies not so much as destructive of coördinated effort, but as healthy decentralizing elements which can, with greater experience, be built into an organization that will be better adapted to bring about teamwork in a group of first-class psychiatrists.

THE ROLE OF ETHICAL CONDUCT IN THE SUCCESSFUL MEDICAL CAREER*

BY FRANK H. WASHBURN, M.D.†

IT was the privilege of the essayist, more than thirty years ago, to be present at a demonstration of the induction of general anaesthesia, by means of ether, at the Boston City Hospital, by Dr. George Washington Gay, the founder of this lectureship. Our impression was such that, even today, witnessing the administration of ether brings to us the mental picture of that scene. With the patient lying upon the operating table, Dr. Gay lifted the cone, containing but a few drops of the anaesthetic (a closed Blake cone or a towel cone was then most often used), several feet above the face and began his lecture, which continued until the man was soundly sleeping. He told us that ether, too rapidly given, causes a sense of suffocation and often great fear on the part of the patient. Beginning first with very small amounts of the drug, just enough to convey a little odor, he very gradually brought the cone nearer the recipient, slowly increasing the amount, always with a readiness to admit more air at the first suggestion of its need. After a while he carefully covered the nose and mouth and finally gave the amount of ether necessary to produce the degree of anaesthesia required.

After supervention of unconsciousness, Dr. Gay told us that, while instructing us in the technique of anaesthesia, he had been careful to make such suggestions as would tend to reassure the patient and studiously avoided remarks that might arouse fear or dread in him. The man gradually fell into a profound slumber, motionless except for the regular respiratory excursions.

It was a beautiful demonstration. We have many times since witnessed the administration of ether by the expert, but never any better and rarely so well. The obvious lessons were—the value of getting the patient's viewpoint and the great influence of suggestion.

This incident is mentioned particularly at this time to bring us a great ethical truth: As practicing physicians, whatever our moral relations may be toward the public, our preceptors, our colleagues or ourselves, our paramount duty is to the patient. First, last and always, we should, figuratively, assume the patient's place and act with due deference.

ETHICS may be defined as "that science which treats of the nature and laws of the actions of intelligent beings, considered as to whether they are right or wrong, good or bad". It investigates the principles and basis of duty. It may be spoken of as moral philosophy. Ethical systems have existed since ancient times. Socrates, Plato, Aristotle, Epicurus, the Cynics and the Stoics are all prominent in their history. The influence of the teachings of Christ upon ethical systems was, and now continues to be, most far-reaching. The simple code He gave us is all inclusive. We know it as "The Golden Rule." The dawn of the Christian era, however, brought a new element into ethical study and theology began to play a part in ethical systems. Theological interpretations and dogma varied them and Augustine, Peter Lombard, Erigena, Anselm, Aquinus and others endeavored to harmonize them with the earlier Greek theories. Hobbes, Paley and Herbert Spencer taught somewhat varying theories of morals. More recently, many eminent philosophers have made the whys and wherefores of moral conduct the subject of profound study. Great universities have established chairs in ethics and eminent educators are teaching its evolution and promulgating its theories.

The application of moral philosophy, obviously, has to do with the conduct of the individual toward society, himself and posterity. Aside from various codes of general social ethics, special ones have been formulated, applicable to

*George Washington Gay lecture delivered at Tufts College Medical School, March 4, 1931.

†Washburn—Surgeon and Chief of Staff, Holden District Hospital. For record and address of author see "This Week's Issue", page 1171.

different groups, including our profession. At first thought it might seem that the Golden Rule ought to suffice as a code for physicians. Were all good, perfect in reason, possessing wisdom and not dominated to a degree by ego, this might be. Even physicians are but partly good. Therefore, it appears to be practical to have somewhat specific rules of conduct for our guidance in our mutual relations and toward others.

Just as knowledge of social moral philosophy leads back to the early Greek philosophers, so does that of practical medical ethics take us to Hippocrates, that scholarly physician of the Island of Cos, who has been termed the "Father of Medicine." Just how many of the works of Hippocrates were from his pen seems to be enshrouded in doubt. All the writings ascribed to him "were compiled in the third century B. C. by a commission of scholars in Alexandria acting under instructions from Ptolemy. This Corpus Hippocraticum has played a great part in the development of medicine." It included the writings of the pupils of Hippocrates. Arthur Selwin Brown, in writing of the Hippocratic Oath, says—"It is not an original work of Hippocrates but was modified by him to meet the needs of his time. Babylonian doctors long ago used a similar oath, and it appears most probable that it has come down to us from a remote part of the stone age." Viewed in this light, it appears that definite rules for medical conduct have a very ancient lineage.

THE OATH OF HIPPOCRATES

"I swear by Apollo, the physician, and Asklepios, Hygeia, and Panacea and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath, and this indenture to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring on the same footing as my own brothers, and teach them this art if they shall wish to learn it, without fee or stipulation; and that by precept, lecture and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to anyone, if asked, nor suggest any such council; and in like manner I shall not produce abortion. With purity and holiness I will pass my life and practice my art. I will not operate on persons suffering from stone in the bladder, but will leave that to specialists. I will enter homes for the benefit of the sick and will abstain from every act of mischief and wrongdoing to women, men and slaves. Whatever, in connection with my professional practice or not, I see or hear, in the lives of people, which should not be discussed abroad, I will not divulge, believing that such things should be kept quiet and secret. While I continue to keep this Oath inviolate, may it be granted me to enjoy life and the practice of my art, respected by all men in all times. But should I trespass on and violate this Oath, may the reverse befall me!"

While facts of earlier Greek history are enshrouded with mythology, the Greek Classical Era, 460 to 136 B. C., was one of marvelous accomplishment. The Greeks of that period were a great and intellectual people and modern medicine owes much to Greek thought of that time. All formulae of moral medical conduct are based on the oath. Reference to the operation for relief of stone in the bladder does not mean that physicians were not to perform surgical operations, as sometimes thought, for Hippocrates practiced and taught surgery and wrote splendid treatises on surgical subjects, which have been translated into all languages. Physicians diagnosed stone in the bladder, but for some reason it was considered unbecoming to perform lithotomy and this was delegated to certain specialists who were not, otherwise, medically trained. With modern urology developed into such a fine scientific art, what a blow to the genito-urinary surgeon, that he may not, as may others, trace a heritage to the Father of Medicine.

THE CHRISTIAN DOCTOR'S OATH

Early in the Christian era a modification of the oath was used. The text follows:

"Blessed be God, the Father of the Lord, Jesus Christ, who is blessed for ever and ever. I shall not lie. I will bring no stain upon the learning of the medical art. Neither will I give poison to anybody though asked to do so; nor will I suggest such a plan. Similarly, I will not commit illegal practices but will teach my art to those who desire to learn it, without grudging or indenture. I will treat the sick according to the best of my ability and will guard my art in purity and holiness. Into whatever houses I may be called upon to enter, I will do so to help the sick, keeping myself free from all kinds of wrong-doing. Whatever in the course of my practice I see or hear, or outside in the course of social intercourse, that ought not to be published again, I will not divulge but will consider such things as holy secrets. Now while I keep this oath may God be my keeper and guide in my life and art, and may I be honored by my fellow men. But should I forswear myself, may the opposite happen."

A version of the Oath was published in Arabia in the thirteenth century. Its text is very long

and phrased to say that physicians should not administer poisons, cause miscarriage, abuse confidences, be unjust, make mischief, tell secrets, advertise in any way, or carry out operations the profession has outlawed. They should agree to consult when desirable or when requested, to make fees commensurate with the patient's ability to pay, to be clean, dignified and well mannered. Although this oath was elaborated from that of Hippocrates about sixteen hundred years later, it is interesting to note that the agreement to avoid the operation of lithotomy was retained.

In India, an oath was in vogue, having many religious restrictions. Among other admonitions we find this—"In proper season thou shalt manicure thy hands, clip thy hair, and put on sacred cloth, dyed brownish yellow, live the life of a truthful self controlled anchorite, and be obedient and respectful to thy preceptor." No hint is given as to why this conduct was expected only "in certain season". Another interesting admonition—"Thou shalt not treat medicinally a professional hunter, a habitual sinner, or him who has been degraded in life." Evidently they did not "love their enemies," in India, in those days.

MODERN CODES

The splendid principles, which are the heritage of our profession, are recognized by all important associations of physicians today. Although modern medical societies are shorn of secrecy, their laws of ethical conduct have the same significance as had the oaths of ancient organizations, which seem to have involved a sort of "freemasonry" and while modern codes do not stress penalties, their existence may be implied, as any trained practitioner, who has attempted the life of a medical outlaw, might well testify. In Great Britain, graduates in medicine are required to take the Hippocratean Oath in an abstracted form and it is required in some schools on the American continent.

Of modern codes, some are detailed and specific in their requirements, while others are brief statements of principles. "The principles of Medical Ethics of the American Medical Association", the code of the largest, if not most important medical society in existence, partakes somewhat of both types. We will omit its reading and in lieu will place a copy in the hands of each of you with our compliments and the hope you will become familiar with its admonitions. The state medical societies are components of the American Medical Association, but inasmuch as one may join his state society without becoming a member of the A. M. A., state codes have a significant value. "The Code of Medical Ethics of the Massachusetts Medical Society" deals with the spirit of ethical behavior, rather than details of conduct and should engage the attention of those whose purpose is to practice in this commonwealth.

MASSACHUSETTS CODE

Article 1. — Physicians should encourage sound medical learning and uphold in the community correct views of the powers and limitations of the science and art of medicine.

Article 2.—A spirit of competition considered honorable in purely business transactions cannot exist among physicians without diminishing their usefulness and lowering the dignity and standing of the profession.

Article 3.—The first duty of physicians is to their patients, who have a right to expect that their diseases will be thoroughly and properly treated and their mental peculiarities or infirmities will receive charitable consideration.

Article 4.—Physicians in their professional relations should be governed by strict rules of honor and courtesy. Their conduct toward each other should be such as to secure mutual confidence and good will. They should take no steps with a view directly or indirectly to divert to themselves the patients or practice of others. Except in cases of pressing emergency, they should not consent to take charge of the patient of another physician, unless the regular attendant has been duly notified. If called upon to take charge in cases of accident or other emergency, they should relinquish their care of the case as soon as the regular attendant is able to resume responsibility.

Article 5.—Consultation should be encouraged in cases of doubt, or of unusual responsibility. The aim should be to give patients the advantage of collective skill. Discussions should be confidential. Care should be taken to avoid impairing in any way the confidence of the patient in his attending physician.

Article 6.—Fee tables have a local application only and are designed to indicate reasonable charges for service. But with the understanding and consent of their patients beforehand, physicians may place any value upon their services deemed proper.

Article 7.—The distinction between legitimate medicine and quackery should be clearly maintained. Physicians should not advertise their methods of practice nor have an interest commercially or otherwise in secret remedies.

Rules supplementing these, for the conduct of general medical bodies, are adopted by some of the associations of specialists. The Pledge of the American College of Surgeons contains the following promise: "I pledge myself, so far as I am able, to avoid the sins of selfishness; to shun unwarranted publicity, dishonest money-seeking, and commercialism as disgraceful to our profession; to refuse utterly all money trades with consultants, practitioners or others; to teach the patient his financial duty to the physician and to expect the practitioner to obtain his compensation directly from the patient; to make my fees commensurate with the service

rendered and with the patients rights; and to avoid discrediting my associates by taking unwarranted compensation." You will note this refers to the practice of secret division of fees, often mentioned as "fee splitting".

You have observed that down through the ages physicians have been governed by high ethical standards. The ethical codes of today are the same in spirit, and often quite similar in text, to that of the ancient Greeks. We are now living in an era of invention and discovery with resulting rapid changes in some of our social relations. Specialization has become rampant in every field of human endeavor, with far-reaching effect upon the scientific pursuits themselves. Medicine, as well, has been affected by this "spirit of the age". Our relations to each other and to society are involved. One who cherishes the traditions of our honorable profession may well fear the possible effect upon ethical conduct. It has been suggested that changes in ethical requirements ought to be made to meet modern needs. It appears true that ethical usage is not, sometimes, in conformity to established rules. It has been said that it is unreasonable to expect conduct conforming to maxims handed down from the age of Hippocrates. It is to be hoped the trend may not take us too far toward the standards of competitive business, which still savors of the horse traders' golden rule, as expressed by David Harum: "Do unto the other fellow as he would like to do unto you; and do it fust."

Medicine is a profession and as such "has for its prime importance the service it can render humanity; reward or financial gain should be a subordinate consideration". Nevertheless, the business side of medicine is real, and mental cultivation, physical equipment, and rest are all essential to best service; their fair acquisition is duty, as well as ethical privilege. We should meet the necessity of making a living and the desirability of acquiring something more, but at the same time keep before our mental vision the spirit or soul of the profession. "What profiteth it a man, if he gain the whole world and lose his own soul?" Commercialism lies at the door of our fair calling, threatening its usefulness and esteem. It is not our intent to discourage, in the physician, the acumen of business but the jealousies and greed of competition.

When you enter upon practice, your manner of attracting the public cannot, ethically, be that of the unprofessional. Advertising to the laity, or any manner of self-laudation, having the intent of placing oneself in a more favorable light than his colleagues, has always been considered unethical. A modest sign announces your location. Whether one should place a card in the columns of a newspaper, or other publication, depends somewhat on the custom of the locality and the view taken by the state medical society. It surely is unbecoming to call attention to personal or professional accomplishments. Offering one's special facilities to other physicians through the medium of medical journal advertising is, obviously, a different matter, if done with honest purpose and without exaggeration. The impression you make upon neighboring physicians will mean much to you, both in attaining practice and finding comfort in your associations. Soliciting patients through agents and alliance with "ambulance chasers", unethical lawyers, etc., is properly condemned. Newspaper advertising and circulation of pamphlets are the most distinctive indications of quackery, to intelligent people. For a number of years, a book upon infant feeding, for use by the laity, having a large sale, bore a protective printed paper covering, over its cloth binding, carrying the laudation of its author as the "Most Eminent Living Baby Specialist." The author was truly able, much consulted by other physicians, and the statement was not much overdrawn. Yet that he was unable to prevent this type of advertising by his publishers seems unlikely. We have no brief to offer in defence of this conduct. To emulate it might be fatal to the prospects of one less well established. Of course, you will never find condonation in the act of another for unethical behavior.

This example is mentioned as one of a type of apparent flagrant self-laudation by the eminent and can but seem unfair to the young man hoping to attract the public by fair means. While the whole matter of advertising may have to be revamped in our codes, we feel that the best advice is to avoid advertising, strictly, until definite rules are officially adopted for our guidance. You may well take interest in, and participate in, the health agencies of your neighborhood. Reading papers before your local medical societies, taking part in medical society discussions, and the publication of worth-while medical papers may be factors in the growth of practice, yet are perfectly ethical. These should be done only when one has some truth to convey. We have received, in the mails, pamphlet after pamphlet from certain medical authors, most of which conveyed no new thought, though perhaps written in readable style, and we have wondered whether the writers were left with sufficient time for practice. This sort of thing savors of advertising and is not recommended.

The subordination of financial gain is not the only virtue that characterizes medical ethics. I like this statement of Dr. Samuel B. Woodward: "What is ethical for others may not be ethical for us, for we are truly set apart in our relations to the community, entering the home as no others enter it, seeing things that no other outsider ever sees, told secrets confided to no one else, able, if we are not restrained by our ethical sense of right and wrong, by repeating what we see, to often bring catastrophe

unparalleled, not only on individuals but on society itself." One can scarcely place too much emphasis upon the danger of loquaciousness and you will religiously abstain from telling outside the patient's home what you observe there. Most men should tell their wives everything; doctors everything except that which concerns his patients. One might well refrain from burdening his wife, even with something that may embarrass her at the next bridge party. If interrogated as to your mission to a home, by one whose concern it is not, it is wise to be ready with an evasive answer. One acquires the art by practice and it is seldom necessary to give offence, but an offensive answer to the ultra-inquisitive may be more ethical than tattling. Of course you must report contagious diseases to the proper authorities and not allow silence to endanger the public. All other means having failed in the prevention of marital venereal infection, or other pollution of the innocent, it is our belief that one's ethical duty is to break silence, but this should not usually be necessary.

Society's attitude, toward the ethical status of the eighteenth constitutional amendment itself may have some bearing on whether abstinence from alcohol should be requisite to an ethical life, but of intemperance there can be no question. In his valedictory address to the graduating class of Bellevue Hospital College, in 1871, Dr. Oliver Wendell Holmes said: "Intemperance in a physician partakes of the guilt of homicide, for the muddled brain may easily make a fatal blunder in a prescription and the unsteady hand transfix an artery in an operation." Abstinence is safe and precludes intemperance.

Abortion is dealt with in all ancient oaths and all modern codes. While it appears almost paradoxical to discuss this subject with men and women of the type found in the student medical body today, our recollection of the entreaties to do illegal operations, met in the early days of practice, which we know you will meet, the heart-breaking stories told us, which we know will be told you, and the offers of gold which were not temptations at all and which we do not think will be to you, urge upon us the duty to again sound the warning, lest one of you might, in compassion, see in some case what appears reason for interrupting pregnancy equal to definite therapeutic indication, which may, but rarely, exist.

One of my associates has medical supervision of the Prison Camp Hospital at Rutland. He usually has some medical men, selected from the prisoners, assisting him in his ward work. They are, for the most part, abortionists, "in the toils". Abortion seems to be almost the only state prison offence perpetrated by physicians. Among those men we have occasionally noted one possessing good personality, education and training, victim, perhaps, of his own compassion for the unfortunate. We cannot think the lure of money was the first temptation. It is a saddening observation. DeLee says: "One of the saddest commentaries on our modern 'civilization', in a so-called religious and ethical era, is the prevalence of criminal abortion. A young physician is not long in practice before he is approached with the request in a hundred ways, open or concealed, to perform a criminal abortion. Not alone the single, but the married, will come. All arguments will be brought to bear, that of friendship for a stricken family, the disgrace of a child under untoward circumstances, the impossibility of caring for a large number of children, ill health, even gold will be offered. The physician should allow none of these things to influence him to do an abortion, because first, it is murder, and conscience will make his later days miserable; secondly, it is a criminal offence, and performed in the way most of such operations have to be done, infection will likely follow, and perhaps death of the patient, with a prison term for the perpetrator, in the perspective; thirdly, accidents, like perforation of the uterus and anaesthetic deaths, are not uncommon; fourthly, if he does it once, he is a lost man. The woman, no matter how firmly she has been bound to secrecy, will tell her friends, and soon his reputation as an abortionist will be established. There are other reasons, but the conscientious physician will not need any at all." When you are solicited, as you surely will be, our recommendation would be this. Say that at any time after conception, the child is alive. It not only has life, but it has form and it has a soul. If its life is taken, the act does not differ, except in degree, from strangling the babe at birth or killing it 10 days later. Say this promptly, show you are injured by the solicitation, make this explanation a habit and requests for your illegal services will become rare. Your position in this important matter will become known and you will be respected for it.

The activities of certain individuals and societies, in the last two decades, toward popularizing of "birth control" have emphasized the need of definition of the ethical status of giving contraceptive advice and the prescribing, by physicians, of drugs and appliances to be used in evading pregnancy. We are inclined, for the present, to evade discussion of the general proposition. However, assuming a case where pregnancy would be likely to cause the death or seriously impair the health of a woman, it would seem that, from the purely ethical standpoint, one might properly advise, prescribe for and instruct her, and it is our opinion that the majority of physicians concur in this. There is, unfortunately, a question as to the physician's legal right to do this. The law in this matter is rather confusing, in some states, and particularly so in Massachusetts. There is, at the present time, a bill before the state legislature that, if passed, might clarify the question of the phy-

sician's legal responsibility. While we may feel that moral law takes precedence over statute law, the ethical physician wishes to observe both.

Secret division of fees, commonly spoken of as "fee splitting" is practiced by some surgeons and specialists, in collusion with such physicians as will refer patients to them for operation or special work, with a mutual understanding that a portion of the fee paid for the operation, or special procedure, will be given to the referring doctor as a bonus, and without the patient's knowledge. So far as one can judge from observation, the practice is not so common in New England as it is reputed to be in the Middle West. Reduced to brief definition, it is buying and selling patients. The American College of Surgeons has waged war against this traffic and no applicant can be admitted to fellowship in that body until he has taken a pledge against "fee splitting," nor can any hospital allowing a "fee splitter" on its staff be approved by the college. The following is a portion of a long resolution, adopted by a certain western hospital, regarding "fee splitting".

> "Fee splitting makes for incompetent surgery. The surgeon who is a party to the practice gets his cases usually not upon the basis of merit, but upon the basis of percentage of fees collected that he will give the practitioner. The more incompetent he is, as a rule, the larger percentage of the fees he gives to his co-fee splitters."
>
> Again, "Under the fee-splitting system surgery becomes a commercial enterprise and not a professional service."

Secret division of fees is to be shunned. First, because it is highly unethical. It is commercial, dishonest and unprofessional. Second, because those who practice it are barred from membership in desirable medical bodies, and are forever outlawed by all the better hospitals.

New difficulties have entered the path of the ethical doctor since the establishment, recently, of laws affecting injured workmen, in the various states, the almost universal use of the automobile and the rapid adoption of labor-saving machinery, etc. They result, in part, from his relation to insurance companies and his more frequent contact with the legal profession and the courts. When you treat an injured workman, your services are paid for by the liability insurance company involved. In making your fees, while you are entitled to fair compensation, it is unethical to make unreasonable charges, or take advantage of any opportunity to overrate the service rendered, or to pad bills in any way. Neither should you be expected to make your fees so low that you cannot afford to give the patient the good care to which he is entitled. You should discourage malingering and unnecessary prolongation of disability. Should you be employed by a liability company to make an examination, or to give your opinion of disability in an ambulatory case of an injured workman, under treatment by another, your ethical relation to the doctor attending the injured person should be the same as though it were a case of ordinary sickness at the patient's home. This fact, sometimes, appears to be lost sight of, yet we have seen no change in rules of ethics to warrant any different conduct.

In your dealings with your patients and their families, your manner will ever be gentlemanly (and to this audience may we add ladylike). Scientific attainment characterizes modern medicine, but your personal approach may mean fully as much, toward the ultimate result, as your cold science and infinitely more to your success in attaining practice and gaining the confidence of your clientele. You will be well mannered and cleanly in person and speech. An air of assumed superiority, or snobbishness, is as ill mannered in a physician as another. The acquisition of a sense of confidence, by deep, rather than superficial, thinking is the best means to an air of assurance, so reassuring to the sick and so helpful in your contact with the public and your colleagues.

Consultations are desirable in cases of severe illness. They may result from the desire, on the part of the attending physician, to have counsel in order to remove doubt in his mind, or if a young practitioner, to gain the support of one more experienced, a perfectly logical reason, for results are better where confidence exists. On the other hand, a consultation may be at the solicitation of the patient, his family, or friends. It is often wise to anticipate such a wish and it is a grave mistake for a physician to feel that his request for a consultant is likely to be taken by the family as an indication of ignorance, or lack of ability. To request a consultant, rather than have one suggested, often enables a doctor to do the choosing and thereby select abler counsel. To refuse to consult is usually, to say the least, unethical. All ethical codes mention the necessity of giving the patient the benefit of collective skill. If the patient or family wishes the opinion of one whom the attending doctor would not care to have, often careful diplomacy may result in a better selection. However, a hostile attitude should never be taken toward the physician named, if he is an honorable practitioner. The attending doctor remains in charge of the case and his judgment should prevail as to how much of the counsel given should be adopted. Respectful consideration should be given the consultant's suggestions and they should be carried out, so far as they may be of no disadvantage to the patient. The consultant should carefully refrain from dropping a careless suggestion that might react to the detriment of the doctor on the case. Because of the very fact that confidence in him accounts for his presence, he should realize what the effect of an unguarded statement might be upon the patient, or anxious relative. Let us

not be hasty in uncovering another's error or misjudgment. A little reflection and introspection usually will reveal the wisdom of this. The consultant's attitude should be helpful rather than critical, as a general rule. Dividing responsibility in consultation should be a relief to the attending doctor, and usually is. Before expressing his opinion, the consultant should discuss the case with the attending physician, in private. Star chamber discussions, in bringing out what the attending doctor has observed in his previous contact with the patient, sometimes materially affect the ultimate advice. Appointments for consultation should be promptly kept.

It is not unethical to refuse consultation with quacks, cultists or other medical pretenders, whose premises are not founded on truth. Friendly contact with the patient's spiritual adviser often reacts to the benefit of all concerned. Dental opinion may, sometimes, well be taken into account.

The ethical relations of the physician to the trained nurse will bear mention. Charlotte A. Aikens, in her "Ethics for Nurses" states: "Loyalty to the physician is one of the duties demanded of every nurse, not solely because the physician is her superior officer, but chiefly because the confidence of the patient in his physician is one of the important elements in the management of his illness, and nothing should be said or done that would weaken his faith or create doubts as to the character or ability or methods of the physician on whom he is depending." The nurse, as a rule, practices a loyalty to the doctor that is far above that of the doctor to the nurse. It is our conviction that, in dealing with the nurse, we ought to apply the "golden rule" a little more finely than is sometimes done. Let us be loath to criticize her before the patient or family. A word of commendation, when indicated, may often bring better results. If it be true that confidence in the doctor is one of the important elements in the management of illness; would it not, also be very helpful, to say the least, if faith were correspondingly reposed in the nurse?

It is probable that promiscuous drugging by physicians has diminished. The empiricism of yesterday cannot stand before the searchlight of the science of today, and we have access to other potent therapeutic facilities. Yet, there has never been a time when so many valuable drugs whose action rests on scientific fact were available as today. This is surely not the age for therapeutic nihilism. The modern druggist is too often a sort of department store proprietor, but we are sure he is sometimes so not from choice. The graduate in pharmacy is educated in matters concerning which we are, we fear, not too well informed. The return of better relationship between the real physician and the real pharmacist would, we are confident, be an ethical advance and react to the benefit of the sick. Of course the booze vending and counter prescribing druggist is beneath our professional alliance.

In your relations to each other, as physicians, you will be actuated by a spirit of fairness. Perhaps we are going somewhat afield to get a word that best exemplifies our meaning, but the quality contained in the word "sportsmanship" should motivate us. One should give, as well as take; you will remember that often "it is more blessed to give than to receive". Professional jealousy should have no place among us and it is the opinion of the essayist that, in considering our personal ethical rights, when dealing with our colleagues, it may sometimes be better, rather than to stand too straight, to bend backwards a little where a point might be controversial. To show anger, or even irritation, may sometimes react unfavorably and giving ground, or heaping the proverbial "coals of fire" often characterizes the real big man. To slander a fellow practitioner, especially to the laity, to criticize his shortcomings, or to call attention to imperfections in treatment, is hardly ever wise. As Professor Marx said: "Slander, like a breath on a mirror, obscures, for a moment, the image; rub it off, that image is all the brighter." Oliver Wendell Holmes said, "Your relations to your professional brothers may be a source of lifelong happiness and growth in knowledge and character, or they may make you wretched and end by leaving you isolated from those who should be your friends and counsellors. The life of a physician becomes ignoble when he suffers himself to feed on petty jealousies and sours his temper in perpetual quarrels." Should you feel that another has acted unethically toward you, go to him, approaching him courteously, stating your grievance, but let it be a man to man talk. Seeming infractions often melt away at such conferences and friendship may be cemented, where otherwise one might carry, for a long time, an uncomfortable sensation in the breast. Let us ever remember the intent is the real crime, the spirit of ethics, the real code. The thoughtless expression of opinion upon another's treatment may result most disastrously. Suits for alleged malpractice have become almost a pastime, within the past decade. Most of these cases do not reach the courts, though one occasionally does. The defendant in such a case, whether he wins or loses, is placed in an unfavorable light before the public and is put to anxiety and expense and is thereby injured. The sad commentary on this situation is that a large proportion of these suits result from unfavorable comment, either thoughtlessly expressed or with malice aforethought (and the result may be the same in either event), by medical men, upon treatment by others. We should constantly guard our expression in speaking of another

physician's work or results. A good rule is to defend another, or keep silent, ever remembering that a loose tongue may prove an unpleasant boomerang.

I would again call your attention to the first pledge in the oath of Hippocrates, "to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring on the same footing as my own brothers", etc. The respect and admiration shown by a student of medicine to his preceptor, in former days, when that functionary was a selected doctor of unusual ability, wisdom and ethical standing, was no doubt profound and his devotion probably often approached that of a son to his father and mother. In these modern days when the function of preceptor has been taken over by medical schools, often factors in colleges and universities, should we not pause and consider our attitude toward our Alma Mater?

Since graduation in 1899, we have had contact, in one way or another, with many young medical graduates of this and other schools. Some have shown an attitude of staunch loyalty; some have seemed critical and in rare instances, we regret to say, we have met one who has spoken disrespectfully and ungratefully of the school that conferred upon him his medical degree. It has been a most pleasing observation in more recent contacts with young men from this school that there now seems to be a unanimity of respect and loyalty that you show to Tufts. This is as it should be and is the ethical thing. When we pause to consider what our school has done for us, is doing for us, and will do for us so long as we shall hold its degree, how infinitely better our opportunities have been than those of them whose apprenticeship was served under a single preceptor; and when we stop to realize the comparatively small expenditure for all we have received, must we not, in spirit, if not by written word, include in our ethical code that first admonition of the Father of Medicine? And some time in the future when financial success smiles upon you, as we sincerely hope it may, possibly there may come a call to you to aid your school, in time of need. Should this happen, do not forget that part of the Oath of the physician of Cos that referred to his preceptor, "to share my substance with him, and relieve his necessities if required".

Now and then, in the past, a student or even graduate, has expressed sentiment averse to the college at the Hill. The motive has not always appeared clear to us. Ideas of sufficient import to influence civilization, engineering projects that have contributed to harnessing the potentialities of the physical properties of our country and scientific truths of far-reaching and vital significance, have emerged from the brain of teacher and student of the college at the Hill. Realizing this and recalling the history of our medical school, from its beginning in that little upstairs room on Boylston Street, through its growth to its present high position as an institution, we *must* take into consideration what the value of its alliance to Tufts College meant to its evolution and development. Whatever may have been your reaction when in contact with those who have expressed the sentiment we have referred to, we trust your reflection upon the splendid past, and your hope for the glory of the future of your Alma Mater, may impel you to honor the name of Tufts wherever you may hear it spoken and to extend your loyalty to the parent college.

And now, fellow students, if I may be permitted the use of the personal pronoun and to be classed as a student, as you embark upon your chosen profession, of which it may be said, there is none more honorable or useful, do not forget, if you are to continue your moral duty to yourselves, your patients, society and posterity, that you will keep abreast of advancing medicine. You will identify yourselves with local and state medical societies. You will read the current medical literature. You will consult books of reference. You will take occasional trips to the hospitals and clinics and touch elbows with the masters, and occasional trips back to your medical school to partake of the magnificent postgraduate opportunities that are to be ours on the completion of the Medical Center. Bear in mind, one can fossilize equally well in a great metropolis, or the smallest hamlet in New England.

Although I have endeavored to indicate some relation between ethics and success, I have said but little of the business side of our profession, partly because of self-acknowledged inability to properly discuss business and partly because I like to view success in life, and particularly in a medical career, as measured by other indications than the acquisition of the material. To say one has attained success in a profession indicates, perhaps, that he has provided well for those who may be dependent upon him, but also that society has benefited by his existence. It indicates that he has done his best and is entitled to the comfort that goes with a knowledge of it. This sort of success crowns only the efforts of those who play fair, i.e., the ethical.

Perhaps I have dwelt with undue emphasis on certain phases of my theme, and that I have entirely omitted mention of quite important ethical rules, I am cognizant. It is assumed you will consult the principal codes and, most important of all, will use your inherent sense of duty, at all times. My purpose has not been to treat the subject exhaustively, but to try to help you in visualizing the broad principles of fair dealing that should actuate the doctor of medicine.

MEDICAL PROGRESS

PROGRESS IN UROLOGY

BY FLETCHER H. COLBY, M.D.*

ADVANCES have been made in urology during the past year in many ways. Not only have there been developed new means of diagnosis, but older methods and teachings have been consolidated and have borne fruit. Visualization of the urinary tract by intravenous injection has become an established procedure within the past year. Numerous cases reported in the literature from all parts of the world bear evidence to the value of conservatism in renal surgery, justifying former teachings of certain leaders in this field. The wider employment of some of the more recent advances in the treatment of renal stone has resulted in a closer scrutiny into the efficiency of older methods and the adoption of new principles, in treating this very important condition. One who studies the literature of the past year receives the impression that urology has become more standardized in many of its important details. Workers in many countries have given evidence of more general agreement concerning fundamentals of diagnosis, functional tests of renal efficiency, and broader lines of treatment, differing chiefly only in minor details. Such coördination of thought and action is assuredly an evidence of past progress and undoubtedly presages further progress in the future. The free interchange of ideas between this country and others, particularly Europe, has helped to bring about these things, not only through writings but by international meetings, and the presence of such men as von Lichtenberg of Germany and Papin of France at the June meeting of the American Urological Association in New York City.

An outstanding achievement in medicine has been the visualization of the urinary tract by means of intravenous injection. The steps leading to this advance are worth reviewing. In 1905 von Lichtenberg and Volcher experimented with the colloidal heavy metals and found them too toxic for this purpose. In 1923 Rowntree and his assistants published the first positive results in excretion urography. They used sodium iodide, and their work proved conclusively that intravenous urography was possible and that full clinical success only awaited the finding of a satisfactory contrast substance. Roseno was the first to reach clinical success through the use of a urea-iodin combination called pyelognost, which, however, was too toxic for practical purposes. Hryntschak of Vienna and Lichtwitz of Altona, working independently of each other, investigated selectan compounds which had been synthesized by Binz and Raeth. They demonstrated the possible usability of this group of compounds but they obtained no clinical success. Lichtwitz's assistant, Swick, from this standpoint, continued the work in von Lichtenberg's clinic under the latter's direction. As a result of conferences on this subject by these workers, Professor Binz selected a compound for trial, previously synthesized by him, and which was later called *uroselectan*. This substance met all the demands for clinical success[1, 2].

Uroselectan is an organic compound of the pyridin group containing 42% of iodine, the iodine being so placed in the molecule that a substance of low toxicity results. It is unique in this respect among the iodine compounds, the reason being that the iodine is in such close combination with the molecule that it is not easily split off. The result is that uroselectan goes through the body unchanged[3]. During the past year this drug has been given an extensive clinical trial, both in this country and abroad, and certain conclusions now may be given in fairness as regards indications for its use, toxicity, and general merit. The technique of administration is simple. Forty grams of uroselectan dissolved in 100 c.c. of redistilled water, filtered and sterilized, are slowly injected intravenously. Children and infants are given a correspondingly smaller dose. According to von Lichtenberg[4], from a clinical viewpoint, intravenous urography is indicated where cystoscopy is impossible, where ureteral obstruction prevents the injection of the pyelographic solution beyond the obstruction, and in those cases in which instrumental pyelography carries a risk for the patient.

That the drug is relatively non-toxic, when administered slowly and in the proper dosage, seems to be the experience of all who have used it. As the result of an experimental study of its use in animals Gardner and Heathcote[5] found it non-toxic to dogs and rabbits when given intravenously in doses up to 6 grams per kilo, provided that the rate of injection was not too rapid. (Assuming the average adult weight as 130 pounds (59 kilos), approximately 1.5 grams per kilo of uroselectan are given in the dose recommended; there is therefore a large margin of safety between the amount of the drug required to produce the desired result and the amount that would be toxic.) In strengths of 0.8% a slight depression of the muscle of the isolated heart and intestine of animals was noted by these investigators. No pathological changes either

*Colby—Associate Urologist, Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 1171.

macroscopic or microscopic could be found in the tissues of the animals which had received large amounts of the drug intravenously. Again, the tissues of dogs rendered nephritic with uranium nitrate and then given uroselectan, showed no other changes than those seen in control animals. As regards toxicity in the young, Lanman and Mahoney[6] give the results of their experiences with uroselectan from the Children's and Infants' Hospital in Boston. They followed the dosage outlined by Swick in most of their work, giving the drug by gravity. A full adult dose to patients under a year of age was given on several occasions. Except in two cases there was no reaction noticed in using a proportionately large dose of uroselectan. One patient weighing 12 pounds was give a full adult dose without any demonstrable reaction. One death was reported. This was in a child presumably with considerable kidney damage. About three-quarters of the adult dose was used and the patient died within eighteen hours. They remark that it seemed likely that almost any operative or manipulative procedure might have turned the scale and resulted in a fatal outcome. While the cause of death could not be definitely attributed to uroselectan, the premortal signs developed so shortly after its administration that this possibility could not be disregarded. In their experience with the drug in the young, severe reaction was unusual and did not seem to be entirely dependent on dosage or degree of kidney damage. Except for the one fatal case mentioned, but one other case had any appreciable reaction, and this was transient.

Concerning the reliability and merit of intravenous urography, unanimity of opinion has been expressed from many sides. It is generally agreed that by this method valuable information regarding the urinary tract is made available. In a case of hydronephrosis which still retains functional renal tissue, in partial ureteral obstruction, strictures, or kinks, shadows are obtained which approach in density and definition those obtained by retrograde pyelography, even when the affected kidney excretes scarcely any dyestuff in the usual time of examination. The author of this statement, Chwolla[7], goes on to say that a good radiographic shadow, therefore, does not always mean undamaged parenchyma; on the contrary, it is his experience, as against the opinion generally expressed in the literature, that a poor picture does not necessarily result from poor function. Here arise the difficulties of the intravenous method at present, and for this reason its general employment as an indication of renal function, especially as a test of operability must be accepted with caution. It appears to this worker, that even so slightly a damaged renal function as not to be obvious from the indigo-carmine test, can cause so considerable a diminution in the excretion of uroselectan that no picture is obtained. From this it appears that aside from renal performance, perhaps some other factor has a rôle to play, the elucidation of which will require a greater number of observations. Otherwise the occasional unexpected failures will at least be difficult to explain. If one depends in such cases on intravenous pyelography alone, most erroneous conclusions may be drawn. The method, however, has the advantage of being physiological. Contrast filling of the ureters by means of a ureteral catheter yields at best an inflated or overfilled picture which does not represent the physiological condition. The novelty and peculiarity of the intravenous method lie in the fact that anatomical and functional information of the condition of the urinary organs is obtained simultaneously. Its great advance lies in the possibility of simultaneous demonstration of both pelves, ureters, and the bladder with avoidance of pain. Thus the opportunity for an anatomical and functional overhaul of the upper urinary tract is provided, even in cases in which cystoscopy and ureteral catheterization are beset with difficulties or are impracticable, and in cases in which the introduction of a ureteral catheter is to be avoided. This writer and others suggest the possibility of a therapeutic effect which would appear to be something more than merely a favorable diuresis resulting from the introduction of fluid into the blood stream. Again a warning is issued[5, 6, 7], against the employment of this means alone for diagnosis, and more particularly for operative indications, especially in the hands of the urologically untrained.

As an alternative to cystoscopy in the very young, this method of study has not fulfilled all expectations, as evidenced by the remarks of Lanman and Mahoney[6], "that cases associated with considerable urinary tract infection and concomitant renal damage may not give a satisfactory visualization of the urinary tract with the use of intravenous urographic media". But, in their experience, the greatest number of cases in infants and children requiring urological investigation are those very ones that have a considerable degree of pyuria and associated kidney damage. In such cases, for the most part, and notably in the pyurias of infancy, intravenous urography has given either no visualization of the kidneys and ureters, or so little that reliable information was not obtained. They conclude that the value of intravenous urography is limited in cases which have any marked degree of pyuria associated with kidney damage, and show that this group of cases comprises a large portion (60%) of the disorders of the urinary tract seen in young patients. Its dangers are said to be presumably negligible but must be considered. They believe that the value of the method is largely proportionate to the user's knowledge of urinary tract disease in the young.

Through the use of the Cinex camera, Cumming[8] has studied the emptying of the renal pelvis and ureter when filled with a contrast solution. These studies constitute an advance in revealing more of physiological activity than is obtained by the usual pyelogram, and the method has the advantage over pyeloscopy in that it affords evidence of functional activity in a graphic manner.

An unusual method of studying the urinary tract, called pneumopyelography, is advocated by three French workers, Chauvin, Emperaire and Esmenard[9]. A small ureteral catheter, permitting of reflux beside it, having been introduced to the renal pelvis, the patient lies somewhat to the sound side in order to empty the calyces of fluid; air is then injected from a large syringe at a constant pressure of 80 cm. of water, a manometer being interposed between syringe and catheter. It is essential that the catheter tip be in the renal pelvis and that the injection continue during the exposure. The method is said to be painless and safe, as it has been shown that a pressure of 80 cm. allows of a wide margin of safety from any possibility of an embolism. The especial value of the method is said to lie in the exact localization of calculi, and in the demonstration of stones of little density, which an opaque medium merely conceals; further, papillomata of the renal pelvis are shown, and large hydronephroses may be filled with impunity.

Numerous reports testify to good results from *plastic operations* on the renal pelvis and upper portion of the ureter for obstructive lesions of various sorts. As examples, Walters[10] reports the successful anastomosis of the pelvis and ureter in two instances of obstruction at the uretero-pelvic junction. Nephrostomy was performed in both instances and a catheter left through the anastomosis. It is his opinion that infection in the kidney does not complicate the result.

This subject was under considerable discussion at one of the meetings in 1929 at which von Lichtenberg read a paper which is here given in some detail[11]. Operation for three distinct forms of obstruction are described in the author's paper. When the obstruction is close to the uretero-pelvic junction, the stricture is resected and the ureter implanted into the renal pelvis. The implantation is performed as follows: through an opening made by cutting away the stricture, a No. 12 to 14 rubber catheter is passed into the ureter for 2 or 3 inches and is fixed by a few sutures. Then with long, thin forceps, introduced at the site where the strictured tissue was removed, the wound is further dilated and the catheter is pushed upward into the lowest calyx and the lowest portion of the parenchyma of the kidney. It is fixed with sutures in such position that fully one inch of its length will be held in the renal pelvis. To insure satisfactory drainage, two lateral openings are made on the portion of the instrument which is to lie in the pelvis. The pelvis is then sewed to the ureter in the form of a cuff, and whatever opening may remain when this procedure has been completed is closed with a few fine sutures. Finally, the catheter is fixed to the capsule of the kidney. The urine will flow down the ureter and also out through the catheter. The drainage obtained by giving a portion of the urine exit through the catheter is considered an important feature of the operation. The author states that this method of implantation absolutely prevents the formation of a new stricture; and, furthermore, that he has succeeded in saving kidneys by this method of implantation after the ureter has been injured in a previous operation. In cases in which the exit of the ureter from the pelvis is congenitally deformed, he practises circular incision close to the pelvis and reimplants the ureter in the correct position lower down. He states that he rarely attempts partial resection of the renal pelvis or a plication operation, because he believes that they interfere with the mechanical function of the pelvis.

If radical removal of the obstruction is not feasible, ureteropyeloneostomy is considered the palliative procedure of choice. Von Lichtenberg's method consists in drawing the free part of the ureter to the lowermost portion of the renal pelvis and fixing the two together side to side with a few sutures. A horseshoe incision is then made, beginning on the renal pelvis at the lowest angle of the fixation line, and continuing until the opening of the ureter is exposed. The incision is then continued with very fine scissors on to the ureter below the line of fixation, parallel to the incision through the renal pelvis. The two inner edges of the wound are sutured together, and the sewing is continued around the outer margins, special care being taken when passing from the inner to the outer edges of the wound. If the sewing is properly done, von Lichtenberg states that there will be more than enough tissue for a secondary anterior line of sutures by which the pelvis is drawn over the line of anastomosis. A nephrostomy drain is invariably used in this operation. Strictures situated in the course of the ureter are subjected to dilatation by means of cystoscopic manipulations. If they do not yield, the stricture is exposed and divided, drainage always being provided. The method by which the drainage is obtained will vary according to the location of the stricture; for example, a catheter in the ureter may be drawn out through a nephrostomy wound or carried down into the bladder, or a T-shaped catheter, similar to that employed for drainage of the bile ducts, may be used.

For strictures in the intramural portion of the ureter and for stenosis of the ureteral orifice, the following procedure is highly recom-

mended. The bladder is opened by a suprapubic incision and a Reverdin needle is introduced into the mouth of the ureter and carried up into its lumen for 1 or 1½ inches, and is then thrust through the wall of the ureter and bladder. Then a heavy suture is passed into the eye of the needle and is brought down into the bladder by pulling the needle out of the ureter. Thus the suture is made to traverse the same path as the needle originally took. The suture is tied firmly, the ends being brought out through a small suprapubic drain in male patients, and passed out through the urethra in females. In about a week the suture will have cut through the tissues which it includes, and will come away spontaneously. Von Lichtenberg states that the result of the section thus made is a beautiful slit-shaped ureteral orifice, which performs its function in a satisfactory manner. He recommends this method as being technically simple, and also as radically extirpating the stricture without causing any interference with the function of the ureteral orifice.

At the same meeting, Quinby, of Boston[12], discussed *hydronephrosis* associated with lower polar vessels. His previous communication on this subject was discussed in Progressive Medicine two years ago. Since that time six more patients have been operated upon, bringing the total number up to sixteen. Quinby states that in all these patients the function of the kidney operated upon has improved. He divides the ureter and reimplants it to another position in the pelvis out of contact with the vessel. The theory is advanced that pulsation of the aberrant artery, in juxtaposition to the ureter, sets up sufficient irritation in the latter structure to inhibit its normal peristalsis.

Walters and Braasch[13], also at the same meeting, reported ten operations upon nine patients at the Mayo Clinic. The results of nine of the ten operations were good. In four cases five hydronephrotic renal pelves were resected, one patient having bilateral lesions. The authors state that, to the best of their knowledge, their case is the first one reported in which successful bilateral resection was performed. In one case a secondary nephrectomy was required. Resection of the hydronephrotic or pyelonephrotic portion of a duplicated kidney was performed in three cases. Ureteropyeloneostomy for obstruction at the ureteropelvic junction was done in two cases.

That the efficiency of transverse suture of a longitudinal incision, or the familiar Heineke-Mikuliez procedure, as applied to the relief of obstruction at the ureteropelvic junction, is in doubt, is expressed as follows[14]: "Regardless of the apparent failure of this method in the hands of many operators, textbooks continue to cite this operation as a classical procedure for the relief of hydronephrosis due to stricture at the uretero-pelvic junction. Its popularity is easily understood because the method is technically simple, can be carried out with little trauma to either kidney pelvis or ureter, and at first sight it would lead one to believe that it would give adequate drainage for the renal pelvis." Quinby in 1927 said in a discussion, that from the end results obtained in these cases it would be seen that, in his experience, the operation of transverse suture of a longitudinal incision had not been followed by permanent relief. Herbst and Polkey having had two failures with the operation, investigated its probable value by experiments on dogs. Hydronephrosis was first produced in the dog by a preliminary operation to simulate as closely as possible the ureteropelvic stenosis found in man. This was accomplished by placing a silk ligature on the ureter about two cm. below the renal hilum. Three to ten days later a ureteropyeloplastic operation was performed. The dogs were killed in from six to forty-five days and pyelograms of the kidneys made and the pelvis and ureter examined. The results were uniformly unsuccessful as regards ureteral function and the relief of pelvic retention. In nearly all cases the obstruction and hydronephrosis persisted after the plastic operation quite as much as before. These results were attributed to a foreshortening of one wall of the ureter and a buckling of the opposite wall, producing an added obstruction. It is their opinion that some form of anastomosis between pelvis and ureter is preferable. In discussing this work, Quinby called attention to the fact that the upper end of the ureter and pelvis have just as good a blood supply as the lower end of the ureter and bladder, at least an adequate blood supply, so that anastomosis of the former should be as successful as of the latter. Quinby advises excision of the ureter and reimplantation in the pelvis in place of the Fenger (Heineke-Mikulicz) operation or Y-shaped incision.

Evidences of the value of conserving renal tissue are given in the successful results obtained by *resection* of portions of diseased kidneys. Among others, the literature for the past year contains reports of three cases from the Mayo Clinic in which resection of a diseased portion of a duplicated kidney was successfully carried out, and one instance of successful resection of the lower pole of the kidney for solitary cyst. Walters[15] states that the success of resection depends upon securing complete hemostasis, and also upon avoiding the making of an opening into the adjacent calyx of the remaining portion of the kidney. After beginning the resection, he places a finger in the dilated calyx and pelvic portion of the kidney to be cut away, thereby determining its outer limits. He states that he has not found it necessary to interfere with the blood supply of the healthy portion of the kidney, as bleeding from the

cut surface ceases quickly after the deep mattress sutures have been tied and the superficial parts of the wound closed. He ties the mattress sutures over small pieces of muscle tissue inserted into the wound. In three of the cases such good approximation was obtained by the mattress sutures that it was possible to bring together the edges of the fibrous capsule with a running suture. In one case, however, it was necessary to cover the denuded area of kidney with a portion of the perirenal fat. In discussing the indications for this procedure, Walters expresses the opinion that it is most applicable to those cases in which there is a complete duplication of the renal pelvis and ureter and in which it is necessary to remove only the portion of the kidney involved by the lesion. He also considers it well adapted to the removal of large solitary cysts, although in commenting upon one case in which it was employed for this purpose, and in which nephrectomy was subsequently necessary, he states that resection may prove to be a radical rather than a conservative operation when performed upon elderly patients with arteriosclerosis. His patient was a woman, aged sixty-four years, and examination of the kidney, removed at a secondary operation, showed that hemorrhage had taken place from sclerotic, open-mouthed branches of the renal artery.

That *renal tuberculosis* is more commonly bilateral than was formerly supposed appears to be a more general opinion. Thomas[16] gives his views on this subject as follows: "Since practically all tuberculous infection of the kidney occurs through the hematogenous route, I believe that, except in very rare instances, both kidneys are previously infected. This occurs following repeated bacteremias or the pouring into the blood stream of many tubercle bacilli from a suppurating gland or other focus. It is possible that if only a few tubercle bacilli are in the blood stream the majority of them may find their way into one kidney where destruction may occur, and only a few into the second kidney, where they may be completely encapsulated and removed before they have produced more of an inflammatory reaction than would be recognized as albuminuria. I believe that bacilluria may occur without the production of a macroscopic destructive lesion. I am sure from our clinical studies, however, and from our pathological work and that of Dr. Medlar, that when tubercle bacilli are found in the urine, some lesion in the kidney produced by the tubercle bacillus has progressed far enough to cause ulceration. In my opinion the controversy over eliminatory bacilluria narrows down to accepting the possibility that tiny tuberculous lesions in the kidney may ulcerate into a tubule but may not caseate or produce destruction that is macroscopic. Since it is recognized that the early inflammatory changes, which occur after the kidney is invaded with the tubercle bacillus, are in reality beginning lesions of tuberculosis, we must believe that the tubercle bacillus cannot pass through the kidney without producing a lesion. Only an occasional patient was admitted for some genitourinary lesion, which indicates that renal tuberculosis is always a secondary lesion (Skoda's Law). In no instance was it impossible to find evidence of an active or healed lesion of tuberculosis elsewhere than in the urinary tract. No urinary symptoms were present in a majority of the patients with early lesions. A few had slight frequency of urination, and a smaller number had night frequency. Less than 25% had the severe urinary symptoms usually complained of by patients with a tuberculous bladder."

Regarding the efficacy of functional tests, Thomas says that in his experience the differential functional tests cannot be relied upon for help in the diagnosis of early lesions of tuberculosis. He believes that bilateral pyelograms should always be made, because bilateral lesions of tuberculosis in the kidney are much more prevalent than is usually suspected. He has demonstrated that bilateral lesions of tuberculosis may occur in about 57% of the cases.

Treatment of renal tuberculosis is summarized by the same authority by saying: "The two lesions are (a) tiny hematogenous lesions that are non-destructive, and (b) the phthisical, or destructive lesion. It is known that the non-destructive lesion will heal, and I believe that the patient with this type of lesion should have sanitarium treatment until the urine is free from pus and tubercle bacilli, and until he has demonstrated his ability to heal or control any other lesions of tuberculosis which may be present. When one kidney has a non-destructive lesion and the other kidney a destructive one, the patient should be under treatment in a sanitarium until arrest of the non-destructive lesion has occurred and until he has developed a resistance against tuberculosis. The kidney containing the destructive lesion may then be removed. When a patient has a destructive lesion in only one kidney and no activity in the lungs he should have a nephrectomy. This may be done in the presence of other urinary lesions, or lesions elsewhere than in the lungs. Repeated tests of the other kidney should be made, however, before surgery is undertaken, and preoperative treatment should be continued until the patient's resistance is sufficient to withstand the operation and to control all lesions of tuberculosis that may be present. In my opinion, the removal of one of two kidneys both known to contain destructive or non-destructive lesions of tuberculosis, is not good surgery. Such a patient should have sanitarium treatment. Experience has taught that surgery in this instance shortens, rather than lengthens the patient's life."

The above statements are those of a skilled

man with experience resulting from years of sanitarium work in the study of renal tuberculosis.

The value of *tuberculin* in treating tuberculosis of the urinary tract is vague in the minds of many. Wang[17], having made a study of this subject, comes to the conclusion that tuberculin is not a cure for tuberculosis, as is testified by long and extensive use. He feels, nevertheless, that it cannot be dismissed as not having any value and that there is considerable evidence that tuberculin aids in building up the general health of patients with this type of tuberculosis. Also, in the treatment of postoperative patients it has seemed to be a helpful factor in the regimen of treatment.

Cultural methods to detect the presence of the *tubercle bacillus* in the urine are receiving more attention. Previous methods have been refined and are being tested in various laboratories. Von Huth[18], employing the method of Lowenstein-Sumyoski, reports a series of three hundred cases in which twelve hundred cultures were made. The results were termed very satisfactory; in several cases the disease was diagnosed by this method when repeated urine examinations and a guinea pig test were negative. It is remarked that the cultural method is superior to guinea pig inoculation, since it requires an average of eight to twenty days; is more simple, and demonstrates one type of bacillus which is non-pathogenic to guinea pigs. It may be remarked in passing that Thomas'[16] report, based on broad experience in tuberculosis and the inoculation of an average of three hundred animals a year, says that he has yet to prove that he has had a false positive with the guinea pig test; in several instances negative results were obtained when subsequent repetition of the test was positive. He occasionally found one of two guinea pigs positive and the other negative and interpreted this as meaning that the negative observations occurred because no tubercle bacilli were injected, or so few that a healthy pig killed them promptly. Thomas still believes that the guinea pig is the most reliable laboratory animal for the study of human tuberculosis. As for cultural methods, he has not done enough, but he does not believe they will prove more accurate than the animal test though requiring less time.

In discussing *nephrectomy for renal tuberculosis*, Hunt[19] advises thorough removal of the perirenal fat, accurate hemostasis, partial ureterectomy as low as possible, with incision of the ureter by cautery after secure ligation, and closure of the nephrectomy wounds without drainage. At the Mayo Clinic this has resulted in primary healing in a high percentage of cases. Although it would seem that indications for ureterectomy would arise frequently subsequent to nephrectomy in extensive tuberculous disease, he[20] draws attention to the infrequency with which the ureter is a late cause of trouble. At the Mayo Clinic in a series of approximately 574 cases in which nephrectomy for renal tuberculosis was performed from 1919 to 1928, in no instance was subsequent ureterectomy found recorded. In but one case of nephrectomy for pyonephrosis was subsequent ureterectomy necessary.

Papilloma of the renal pelvis, though not frequently encountered, has been discussed by several writers of the past year, particular regard being given to the necessity of thorough treatment. Paris[21] regards the pure papilloma as potentially a papillary epithelioma whose recurrences can act malignant in spite of benign characteristics of the original tumor, and since their tendency to ureterovesical dissemination after nephrectomy and the possibility of malignant change gives them rank as malignant tumors, they should be treated by radical operation whenever possible. Both this authority and Hunt[19] emphasize the necessity of complete removal of the ureter and segmental resection of the bladder, with the inclusion of the intramural portion of the ureter, in efficiently handling this situation.

As Hepler[22] remarks, in no other phase of renal pathology has there been so much fascinating speculation as to etiology, uncertainty as to pathogenesis, and lack of adequate classification, as in the so-called *solitary cysts of the kidneys*. The increasing number of case reports of solitary cysts indicates that this condition is not so rare as was formerly supposed, and while the actual number of cases reported is about 249, they are not a rarity to the pathologist, who finds the condition in three to five per cent. of all autopsies. He observed that the experimental production of diverticula in the kidney, as a result of ligation of the ureter and partial occlusion of the blood supply, gave a similar gross and histological appearance to solitary cysts. Working on the theory that disturbance in the blood supply might be an important factor in cyst formation, while tubular block alone would not produce them, he succeeded in producing an experimental solitary cyst in the rabbit by exerting urinary back pressure on an infarcted area. Hepler contends that the large, usually solitary cysts are acquired and that they are not a distinct entity with a common etiology, but that the mechanism of their production is essentially the same. Recognized pathological conditions of the kidney cause them but only when so situated as to produce a combination of group tubular obstruction and anemic degeneration of the parenchyma from circulatory disturbances, in the same segment of the kidney. In some instances an additional factor is said to be repeated prolonged hemorrhage into the same area. This conception is taken as explaining the variation in size, number, contents, cyst wall, and associated renal

conditions on the basis of variation of the direct etiological factor, the amount of group tubular obstruction and the area of nutritional disturbance depending on the size and distribution of the vessels involved. Clinical and pathological features common to solitary cysts are enumerated which lend support to this hypothesis.

The advance which the x-ray has made in the diagnosis of *renal stone* is well pointed out by Chute[23] in a clear discussion of this important subject. He brings out the fact that radiography has shown that not alone acute pain, but that vague pain in the upper abdomen, in a loin, or in the back, even in rare instances, pain that is apparently typically gastric in type, may depend upon a stone in the kidney and disappear following its removal. Also that the great difficulty in the recognition of many renal stones comes from the fact that we have not as yet thoroughly learned the mildness of the symptoms that renal stones oftentimes produce. That difficulties may be encountered in entirely ridding a kidney of stones, is shown by Barney and Watson[24]. This interesting paper and the discussion bring out some of the advances in the technic of dealing with calculus disease of the kidney.

A new technique for nephropexy in the cure of *nephroptosis*, which eliminates many of the criticized features of former operations, such as decapsulation and non-absorbable sutures, is given by Deming[25] as follows: "The kidney is exposed through a high lumbar incision and cleared of perirenal fat. The organ is held in position beneath the costal border with the upper pole lying opposite the last rib. The upper pole should be carried medially and the lower pole outward to give dependent drainage to the lower calyx. With the kidney held in this position, a series of interrupted mattress chromic sutures, number 00, are placed through the perirenal fascia and peritoneum to the quadratus muscle. The perirenal fascia is always excessive, so that it can be easily approximated. Precautions must be taken not to include the bowel medially. The first stitch should be placed about one cm. from the ureter and as high up as possible on the quadratus posteriorly. Care should be taken not to include any nerves in the sutures. A series of from five to eight sutures is necessary to close this aperture. This forms a basket sling for the kidney, so that it is impossible for the organ to descend. This row of sutures is now reinforced by bringing up all the extra peritoneal fat and suturing it with two or three mattress sutures to the quadratus muscles below the other line of suture." The results obtained from this procedure are said to be excellent.

Pyelitis of pregnancy is shown to occur in about one per cent. of pregnant women by Crabtree and Prather[26] in a study of over ten thousand pregnant women at the Boston Lying-In Hospital. The unusually close coöperation between these urologists and the services of the hospital resulted in two excellent papers on this subject. They found the colon bacillus the causative factor in overwhelming preponderance, and consider the obstructive factor the tight fitting uterus, and not other factors such as hyperplasia of the lower end of the ureter and bladder wall, as suggested by Hofbauer. They believe that cystoscopic treatment increases greatly the number of completed pregnancies, but that even this form of therapy should not be unduly persisted in until the patient's life is endangered. Cystoscopy is indicated if the disease appears to be steadily progressing after 36 to 48 hours of complete rest and forcing fluids. By ureteral catheterization and suction the renal pelvis is emptied of its contents, following which small amounts of antiseptics (2 to 4 cc.), such as silver nitrate, may be used. They do not find inlying catheters satisfactory in this condition because they produce oedema if left for long, are often removed by the patient, tend to be painful, and become easily plugged.

Primary carcinoma of the ureter is a rare condition of which Rousselot and Lamon[27] analyze the fifty reported cases including one of their own. They found that the papillary epithelioma is the most common form of primary malignant disease affecting this part of the urinary tract. Adenocarcinoma and medullary carcinoma have also been described, but the authors are of the opinion that the nomenclature varies somewhat with the ideas of the persons reporting the cases. In their case the growth was of the squamous-cell type, and they state that only five such tumors have been reported. All these ureteral growths produce extensive and remote metastasis. Many authors have expressed the opinion that calculi, by their irritative action, play an important causative rôle in the origin of epitheliomatous tumors of the urinary tract. In the cases which the authors analyze, no frequent association of stones and tumor could be discovered. Pain and hematuria are the most constant symptoms;—one or the other being present in more than 50 per cent. of the cases studied. Pain often radiates along the course of the ureter, being similar to that which occurs in renal colic. Kneise[28] also points out the difficulty of diagnosis of this condition in his report of two cases; mentioning the possibility of part of the growth protruding into the bladder, and the presence of tumor cells in the urine, and pneumoureterography as useful aids in diagnosis. In only fourteen cases in Rouselot's and Lamon's series was the true nature of the trouble suspected. The finding of an obstruction in the ureter, in the absence of roentgen-ray evidence of stone, in a patient who gives a history of pain and hematuria, should lead one to suspect the presence of a

growth in the ureter. The prognosis is very serious. The authors state that in only one recorded case was the patient free from symptoms for a period as long as two and a half years after he first came under observation. Treatment consists in the removal of the affected ureter and kidney.

Less enthusiasm for various forms of intra-urethral manipulation for *ureteral stones* is noted by Bumpus and Thompson[29]. They see more virtue in the simpler methods such as dilatation by soft bougies and in-lying catheters, and remark that in 146 cases stones were passed following manipulations incidental to the first cystoscopy. Cases showing marked infection they treat by operation, feeling that sepsis may follow the manipulation, and death may ensue unless operation is resorted to. They find reaction following manipulation reduced if ureteral catheters are left in place to insure drainage. In dealing with this subject Deaver and Burden[30] estimate that 75% of stones in the ureter pass spontaneously but they believe that when there is any question as to the policy of watchful waiting, once the presence of a stone in the ureter has been established, the safer course is to proceed at once with its removal. Where symptoms warrant it, their custom is to remove the appendix through the same incision, closing the peritoneum before an extraperitoneal exposure of the ureter is made.

Last year's literature contains little mention of *stricture of the ureter*. This subject was investigated experimentally on dogs by Vermooten and Wheeler[31] who found hypertrophy and hyperplasia of the muscular layers with dilatation above a point of partial obstruction, made by tying ligatures loosely about the ureter. Associated with the dilatation they found varying degrees of elongation of the ureter. First tortuosities and later kinks developed in association with the increase in length, although no actual obstruction of the lumen resulted.

How *kinks* may be produced in the normal ureter simply by deep inspiration at the time of pyelography, is strikingly shown by Thompson and Bumpus[32] who conclude that kinks of the ureter may be present without symptoms, and that their correction by surgical measures should be delayed until urinary stasis is demonstrated.

Transplantation of the ureters to the large bowel being a preliminary to removal of the bladder for cancer and other conditions, any advance in the technic or simplification of this procedure is of considerable interest. Coffey[33], who has already contributed so much to this subject, describes a method of aseptic ureteroenterostomy by means of a transfixion suture. The bowel lumen is not opened; a suture placed between the ureter and intestinal mucosa is relied on to slough through and thereby establish the communication between ureter and sigmoid. Coffey claims that this operation has the advantage of being more simple in performance than the other methods he has used, and that it is followed by no local intraperitoneal infection and by much less clinical reaction than any other method he has tried. The operation is not practical for the transplantation of the two ureters at the same time. He has performed the operation experimentally on dogs with good results. Coffey[34] reports twenty cases of transplantation of the ureters to the sigmoid with but one operative death. Eight of these were for cancer of the bladder, and in this group there were no deaths. The description of a technique for bilateral transplantation and total cystectomy in one operation is given, with the report of a case in which this was successfully carried out.

An interesting symposium on *cancer of the bladder* was given at last year's meeting of the American Medical Association by Kretschmer, G. G. Smith, and Barringer, covering their experiences in treating such cases by (a) diathermy alone, (b) irradiation and diathermy, and (c) radium. Kretschmer[35] discussed 109 cases of all kinds of bladder cancer which were treated only by surgical diathermy. His operative mortality was 22.9% (44% being due to pulmonary complications; embolus or pneumonia). Twenty-three patients (21.1%) were living and well at varying intervals of one to fourteen years after operation, and these were cases in which the disease was early without much involvement of the bladder wall. Smith[36] reported a series of fifty similar cases treated by excision, electrocoagulation or radium, with a postoperative mortality of 22%. Twenty-eight per cent. of his cases were free of tumor two years after operation. A series of ninety-eight cases of tumor of the bladder treated by radium alone was reported by Barringer[37]. In all of his cases cancer was diagnosed by pathological examination, fifty-one being of the papillary type and forty-seven the infiltrating type. The growth was "controlled" (there being no evidence of tumor so far as could be determined) over three years in 52.9% of the papillary tumors and in 29.7% of the infiltrating cancers. The operative mortality in one hundred and nine consecutive cases in which the suprapubic implantation of radium was carried out was 3.6%.

This tabulation of results obtained from treating bladder cancer by three eminent workers in different ways, is exceedingly interesting. The results recorded by Kretschmer and Smith closely agree as regards postoperative mortality and end-results; presumably the same method of approach was used by both operators, wide exposure and free mobilization of the bladder. Barringer's results as judged by the same standards, postoperative mortality and end-results, are so superior as to be striking by comparison.

Others agreed with Bugbee, in the discussion which followed: "That no one method of treating carcinoma of the bladder is satisfactory for all cases is self-evident from the variety of methods and technics now in use."

Concerning diseases of the *prostate gland,* Bonney[38] gives such an excellent résumé in *Progressive Medicine,* that I am taking the liberty of reproducing much of his review on this subject. "The circulatory conditions complicating obstructive enlargement of the prostate have been carefully studied during the last three years in the Brady Urological Institute under the direction of Dr. Hugh H. Young. The conclusion reached as the result of the study has recently been published by Andrus and Alyea[39]. Attention is called to the necessity for limiting the intake of fluids in patients who present any considerable degree of congestive heart failure. In such cases the patient is put at rest and brought under the influence of digitalis before the quantity of fluid which he has been taking is materially increased. Sedatives, or often opiates, have been found useful for a short time for putting the patient at ease and securing sleep, while catheter drainage is being established. After local and general relief have been obtained, and the heart's action has become more satisfactory, the intake of fluids can gradually be increased. According to the authors' experience, the most valuable indication that the limit of tolerance of fluid is being reached is an increase in the number and extent of râles over the bases of the lungs. Twenty-five hundred cubic centimeters in twenty-four hours is regarded as the maximum quantity for patients of this class, and in many cases a lesser quantity is indicated. It is pleasing to note that the routine administration of digitalis is condemned. The drug is given, however, to all patients who show signs of congestive cardiac failure, the dosage being 1.5 gm. of the leaves to 100 pounds body weight, or an equivalent amount of some other standard preparation. Its administration in divided doses, over a period of forty-eight hours or more, has been found most satisfactory, except in cases of acute cardiac failure, in which it may be given more rapidly. After digitalization has been established, the drug is continued at the rate of 0.1 to 0.2 gm. daily. The routine use of digitalis was condemned by Hare, in the address to which reference is about to be made. He stated that there are certain cardiac conditions, not uncommonly found in the subjects of serious genito-urinary disease, in which the drug is positively contraindicated, as for example, those in which the electrocardiogram shows inversion of the T-wave dependent upon definite tissue changes. It is pointed out that such inversion of the wave is also revealed in patients who have been given too much digitalis for other cardiac conditions.

Hyperventilation, which can usually be accomplished voluntarily by the patient, has been found useful in relieving hypostatic congestion, postoperative as well as preoperative. In some patients, very old and feeble, it is better induced postoperatively by the inhalation of carbon dioxide, 5 per cent., in oxygen.

The question of intake of fluid is also discussed by Keyes[40]. He succinctly states that "before the patient is forced to drink water provision should be made that the water can get out". If partial retention is not relieved, the forcing of fluids may precipitate an attack of complete retention. This subject was also dwelt upon at some length in an address delivered by H. A. Hare[41] at a conjoint meeting of the New York and Philadelphia Urological Societies last spring. Attention was called to the fact that the mere outflow of fluid from the kidneys does not prove that deleterious substances are being excreted. Preliminary studies to determine the ability of the kidneys to excrete water should be made before the order to "push water" is given. Determination of the solids excreted, should be made as the outflow of urine increases following the increased intake of fluids.

On several occasions in the Review some space has been devoted to a consideration of Caulk's cautery-punch operation for the relief of minor degrees of *obstruction at the vesical neck.* In a more recent contribution to the subject, Caulk[42] states that during the preceding year he extended the use of this method to 85% of all cases requiring operation for obstructive prostatic enlargement that came under his observation. With the latest models of his instruments he believes that any obstructive lesion at the vesical orifice can be grasped and cut away, providing the operator has had some experience with the method and takes care to work with good illumination. Attention is called to the fact that it requires really great strength to press and hold the obstruction in the slot of the instrument, and Caulk believes this matter has frequently been overlooked by different operators. He states that he has removed as many as six pieces of tissue at one sitting. The tissues are previously infiltrated with procaine solution introduced through the punch by means of a special needle. The technique is described minutely, but its description will not be repeated here.

The total number of Caulk's operations at the time his paper was published was 510, and he states that he has not had a single death that was directly attributable to the operation. Gratifying results have been obtained in 46 cases of carcinoma of the prostate. In several patients, suffering from inoperable carcinoma and having metastases in remote parts of the body, pain was alleviated and ordinary vesical function was reëstablished for as long as two and a half years.

In discussing this subject, Keyes[40] expresses

the opinion that the advocates of the various minor operations for the relief of obstruction at the vesical neck, fail to bear in mind the purely temporary character of the benefit which accrues from these procedures. He briefly reviews the results obtained, citing the fact that the ultimate report of Freudenberg, who burned a groove in the prostatic bar with a Bottini instrument, showed that relapse took place in most of the cases he had treated. Chetwood's experience is also cited, and it is stated that the ultimate results were entirely unsatisfactory. Keyes, himself, went over the histories of seventy-five patients subjected to the operation and found that only two of them had been permanently relieved. These two were examined ten years after the operation. The others in the series were dead, or suffering from retention, or had had the prostate removed.

Opinion is divided concerning the advisability of radical operation in *cancer of the prostate* when the growth is thought to be confined within the gland. Young[43] who designed the operation has recently published the results which he has obtained. In a series of twenty-five cases of total prostatectomy, there was one operative death said to be due to the ligation of one ureter, one case had a persistent perineal fistula. One patient had remained free of any evidence of the disease for thirteen years after operation, one for eight years, one for seven years, two for five years, one for three years, two for two years, and three for one year. Four patients could not be followed for a year. Three of the cases died of recurrence, one after three years and two after more than two years. Five of the patients are said to have slight urinary incontinence during the day and two are incontinent at night.

An analysis of twenty-six cases of cancer of the prostate operated upon by Young's method was published by George G. Smith[44] of Boston in 1929. In this series, three of the patients succumbed in the hospital, and it is known that eight others died of cancer at periods varying from three months to five years and nine months after they left the hospital; fifteen were still living at the time the author's report was prepared, having survived for varying periods up to six years after operation. Six patients had survived from four years to six years and four months. As to complications, it is stated that one patient had a persistent rectourethral fistula. This unpleasant sequel is attributed to the use of radium. Three patients had loss of urinary control. In discussing the late results of this operation, Smith states that patients are likely to have much less urinary trouble when recurrence takes place than after operations in which less of the prostatic tissue is removed. According to his experience, in many cases recurrence caused death by compressing the ureters and thus inducing uremia; and in others by giving rise to general carcinomatosis. In such cases, however, the patients have retained their ability to urinate without much difficulty. With the exception of draining the bladder by a tube inserted through a stab wound just above the trigonum, Smith states that he has not deviated from Young's method. He also drains through the urethra by means of a soft catheter. It is considered essential that the patients have a fair measure of cardiac and circulatory reserve, for the operation is time-consuming. If the disease has extended posteriorly beyond the seminal vesicles, or has invaded the wall of the bladder beyond the trigonum, operation should not be performed. The pelvic cellular tissue also should be free from involvement, so that upon rectal examination one should be able to outline the lateral aspect of each lobe of the prostate and to reach the upper edge of the indurated area.

Regarding the possibilities of radium treatment for cancer of the prostate, Barringer[45] of New York recently expressed his views which are worth recording in detail. "Carcinoma of the prostate still holds its place as the most baffling of urological conditions. We know little of its etiology. In but a small per cent. of cases is the diagnosis made sufficiently early to give any sort of treatment a fair chance of success. Even if an early diagnosis is made there is no general agreement as to the best way to treat this neoplasm. We hold that the possibilities of radical surgery have been fully exploited while the effective use of radiation is still far from the practical limits of its application to this disease. Less than five per cent. of all prostatic cancers seen at the Memorial Hospital were confined to this organ. Radiation, along with other methods, has failed to produce the best results, but in its conception is sound. Effective application of radiation to prostatic cancer can only keep pace with the fundamental progress of the science of radiation. To date, this form of therapy has been largely empirical in its application to new growths of the prostate. Only of recent years has it become apparent that more accurate methods and nicer adjustments of dosage to the biophysical reactions of normal and neoplastic tissues are productive of superior results. We have already felt the force of these advances and find that their application to the problem in hand has resulted in gradual improvement in the response of these malignant tumors to radiation.

"Of important bearing on choice of therapy is the early infiltration of the capsule of the organ by the neoplastic process. Before local extension can be appreciated, the new growth has frequently invaded the fibromuscular capsule by way of the loose cellular septa, gaining ready access to the small venules of the surrounding prostatic plexus. These veins are rapidly invaded by tumor cells, rendering surgical intervention an impossibility without immediate

dislodgment of tumor emboli followed by distant metastases. We believe this type of extension occurs as early and with almost as great frequency, as does extension by way of the lymphatics and regional nodes.

"Pelvic lymphadenopathy occurring in a very high per cent. of all cases of carcinoma of the prostate, a high early incidence of capsular infiltration and venous thrombosis by tumor cells, frequent primary or secondary involvement of the accessory glands at the bladder base; all often present when the patient is first compelled to seek advice, constitute an insurmountable barrier to the successful surgical treatment of the disease no matter how radical its conception and execution.

"The difficulties of accurate diagnosis of prostatic neoplasms have been considerably decreased by the adoption of biopsy by needle puncture and aspiration according to the technic of Martin and Ellis (*Annals of Surgery*) and applied to the prostate by one of us.

"If we are seeking earlier diagnosis of these tumors it must be recognized that cancer may and does originate in any portion of the organ, regardless of the presence or absence of benign hypertrophy, and that no false sense of security should be felt due to apparent normality of the posterior lobe. By utilizing this advance in biopsy technic any suspicious nodule in the prostate may be readily subjected to microscopical study."

To show the progress made in radiation therapy in this disease, Barringer reported his first series of cases treated with radium in 1922. This report concerned forty-six cases treated between 1915 and 1917. In but one case was the neoplastic process confined to the prostate. In spite of the advanced type of case, he reported five of the forty-six cases alive and well after five years. No gross evidence of active cancer remained in these cases so far as he could tell. The tumors were treated by steel radium needles through the perineum. Small doses, 200 to 300 millicurie hours for each needle, were repeated every two or three months until evidence of regression was noted. One case, dying from other causes seven years after first being seen, showed no carcinoma at autopsy, although Ewing diagnosed cancer by tissue originally.

Since this first series Barringer says progress has been slow but sure. His latest report shows eight out of forty patients alive and well for a five-year period. (20% as compared with 10.8% of the first series.)

Barringer believes that in most cases of prostatic cancer a much larger dose of radium than heretofore used is necessary to control the disease. Because of the necessity for a large dose of radium accurately placed within the prostate he has quite reversed his original contention that the best approach is through the perineum. Cystotomy is advised, any obstructing portions of the prostate are removed with cutting forceps or cautery, and the entire tumor, no matter what its limits, is implanted with gold radon seeds, using seeds of two millicuries each to every cubic centimeter of new growth.

From a study of twenty-five cases of prostatic cancer treated by high voltage x-ray, G. G. Smith and Peirson[46] conclude that:

(1.) Urinary symptoms are not improved by x-ray.

(2.) X-ray will relieve other types of pain due to prostatic cancer and its metastases in most instances.

(3.) The duration of this relief is variable but usually lasts two to three months after each series of treatments.

(4.) In some cases the malignancy of the growth appears to be reduced, as evidenced by improvement in the patient's general condition and in slowing up the progress of the growth.

(5.) Three or four series of treatments, given at intervals of two to three months should be given, but not more.

Malignant degeneration of the adenomatous prostate is a subject which has received attention for many years, and the frequency with which it occurs varies greatly in different series of cases. A recent contribution to the problem has been published by Paul Blatt[47], from Rubritius' Clinic in Vienna. In a series of 191 cases in which the enucleated prostate was studied microscopically, there were ten in which unmistakable evidence of carcinoma was found, and nineteen in which anomalies of cellular structure aroused the suspicion of malignancy. This author, in common with others who have written on the same subject, calls attention to the milder clinical course of this secondary form of prostatic carcinoma. Not only are the urinary symptoms it produces less severe, but the tendency to form metastases is also less. The possibility of malignant degeneration of adenoma is considered to be one of the strong indications for early operation in enlargement of the prostate. Of ten patients whose prostates showed clearly the presence of carcinoma, there were three who died of recurrence at periods varying from two to three years after operation. One patient died of cardiac disease after two years, and another died of some unknown condition. Five of the group were alive at the time Blatt's report was published. Two of them had developed recurrence and a third patient presented signs suggestive of beginning malignant recurrence. The remaining two in the group, two years after operation, have remained free from all symptoms. (Progressive Medicine.)

Several new methods of *prostatectomy* have recently been devised and their results reported in the last year. Meherin[48] describes the technic of ischiorectal prostatectomy through an inci-

sion from the sacrococcygeal articulation to one side of and beyond the anus, retracting the rectum to one side. One hundred and forty-eight cases operated on by this method had a mortality rate of 4.07 per cent., and there were no instances of permanent fistula or incontinence. Crabtree[49] advocates total perineal prostatectomy in cases of fibrous prostate which on rectal examination are small, elastic and not nodular and which present a normal cystogram and a short prostatic urethra by urethrogram. In fifteen cases so treated there was no mortality and the end-result, in all cases, was said to be satisfactory.

In an excellent article, well illustrated, Guiterrez[50] describes one hundred consecutive *seminal vesiculectomies,* without a death. The operations were performed after the Young technic. Guiterrez considers the results obtained from excision of both seminal vesicles in this series, as being satisfactory beyond expectation, and as proving that surgery of the seminal vesicles, when a recognized technic is used, particularly the perineal method, is a safe procedure. He speaks of the operation as extra-urethral, extra-vesical and extra-peritoneal, thereby avoiding the common sequelae, mentioned by many writers, of perineal or rectal fistulae, epididymitis and urinary incontinence; none of these being encountered in his cases. When the vesicles are removed, it is said that the ampullae are not torn, the connection of the lumen of the vas deferens remains patent and, therefore, the spermatic function is not disturbed. The ampulla or remaining portion of the seminal tract gradually becomes distended and hypertrophied and supplants the physiologic function of the vesicles, thus becoming the reservoir of the semen.

On reëxamination of these patients, upon whom seminal vesiculectomy was performed six or seven years ago, Guiterrez found the ampullae patent and easily palpable by rectal touch in more than 21 per cent. of the cases. The external genital organs were normal, or the same as before operation, in all cases. In every instance the scar of the perineal wound was firmly healed. The prostate gland was found normal in about 80 per cent. of the cases and slightly enlarged in about 10 per cent. Sexual ability had apparently remained unchanged in most instances. The author believes that psychotic patients suffering from chronic vesiculitis, who have been given ordinary medical care, should receive the benefits of surgical therapy provided all other foci of infection have been removed previously.

As the result of an experimental study of *testicular grafts,* Moore[51] says as follows: "It would appear that the clinician who describes the beneficial effects, supposedly lasting from one to two years, from sheep, dog, bull, deer, or other such testis transplants into man, is concerned with psychic phenomena rather than hormone action. Recourse to the contention that such beneficial effects are mediated through a stimulating action on the patient's own gonads by the graft, will also not help him out, because the evidence for this contention is as groundless as the idea of direct hormone effect on the organism. Two established points would be necessary before such an ideal could be countenanced, (1) that the autolyzing graft really introduced hormone for such stimulation or (2) that hormone actually introduced, by whatever means, exerts a stimulating action on the gonadal tissue, resulting in increased hormone production on their part."

Moore cites his experiments as showing that hormone is not liberated from such non-viable grafts in amounts that can be detected by any known method; and says that there is not only a total lack of support for the second idea but it is at the same time illogical.

REFERENCES

1 von Lichtenberg, A.: The principles of intravenous urography. Brit. J. Urol. 2: 341-347, Dec. 1930.
2 Beer, E.: Uroselectan intravenous urography. Ann. Surg. 92: 761-765, 1930.
3 Colby, F. H.: Intravenous urography. New Eng. J. Med. 203: 470-472, Sept. 4, 1930.
4 von Lichtenberg, A.: The principles of intravenous urography. Address before the American Urological Association, New York City, June 12, 1930.
5 Gardiner, R. A. and Heathcote, R. S. A.: Uroselectan: an experimental study. Brit. J. Urol. 2: 352-366, Dec. 1930.
6 Lanman, J. H. and Mahoney, P. J.: Intravenous urography in infants and children. Am. J. Dis. Child. At press.
7 Chwolla, R.: Our recent experiences with intravenous pyelography. Brit. J. Urol. 256-267, Sept. 1930.
8 Cumming, R. E.: Urography. The development of a new method with physiological data. J. Urol. 24: 587-594, Dec. 1930.
9 Chauvin, Emperaire and Esmenard: La Pneumopyelographie. Arch. d. mal. d. reins. et des organes génito-urinaires 4: 513-530, Feb. 1930.
10 Walters, W.: Ureteropyelonephrostomy for urinary obstruction. Ann. Surg. 91: 101-105, 1930.
11 von Lichtenberg, A.: Plastic surgery of the renal pelvis and ureter. J. A. M. A. 93: 1706-1709, from Progressive Medicine, 1930.
12 Quinby, W. C.: Factors influencing the operative procedure in hydronephrosis. J. A. M. A. 93: 1709-1710, Nov. 30, 1929.
13 Walters, W. and Braasch, W. F.: Urinary obstruction and hydronephrosis. J. A. M. A. 93: 1710-1715, Nov. 30, 1929.
14 Herbst, R. H. and Polkey, H. J.: Fenger's uretero-pyeloplastic operation. J. Urol. 18: 23-31, Jan. 1930.
15 Walters, W.: Heminephrectomy or resection of a part of the kidney. Surg. Gynec. Obst. 50: 473-477, 1930.
16 Thomas, G. J.: Renal tuberculosis. J. A. M. A. 94: 229-235, Jan. 25, 1930.
17 Wang, S. L.: Tuberculin therapy in urologic tuberculosis. J. A. M. A. 94: 235-239, Jan. 25, 1930.
18 von Huth, T.: Culture of tubercle bacilli from the urine. Surg. Gynec. Obst. 50: 985-989, 1930.
19 Hunt, V. C.: Problems related to surgical lesions of the kidney. Ann. Surg. 91: 92-100, 1930.
20 Hunt, V. C.: The necessity for operations on the ureter, including ureterectomy, subsequent to nephrectomy. J. Urol. 23: 43-48, Jan. 1930.
21 Paris, P.: Les polypes du bassinet. J. d'urol. 29: 5-24, 1930.
22 Hepler, A.: Solitary cysts of the kidney. Report of seven cases. Surg. Gynec. Obst. 50: 668-687, 1930.
23 Chute, A. L.: The diagnosis of renal stone. New Eng. J. Med. 202: 60-63, Jan. 9, 1930.
24 Barney, J. D. and Watson, J. L.: Some end results of renal calculus. New Eng. J. Med. 202: 67-76, Jan. 9, 1930.
25 Deming, C. L.: Nephroptosis. J. A. M. A. 95: 251-257, July 26, 1930.
26 Crabtree, E. G. and Prather, G. C.: Clinical aspects of pyelonephritis in pregnancy. New Eng. J. Med. 202: 357-366, Feb. 20, 1930.
27 Rousselot, L. M. and Lamon, J. D.: Primary carcinoma of the ureter. Surg. Gynec. Obst. 50: 17-28, 1930.
28 Kneise, O.: Primary carcinoma of the ureter. Ztschr. f. Urol. 26: 10, 1930.
29 Bumpus, H. C. and Thompson, G. J.: Stone in the ureter. Surg. Gynec. Obst. 50: 106-112, 1930.

30 Deaver, J. B. and Burden, V. G.: The surgical management of stone in the ureter. Ann. Surg. 91: 85-91, 1930.
31 Vermooten, V. and Wheeler, B.: Ureteral Stricture. J. Urol. 24: 269-278, Sept. 1930.
32 Thompson, G. J. and Rumpus, H. C.: Ureteral kinks. J. A. M. A. 94: 771-772, Mar. 15, 1930.
33 Coffey, R. C.: Production of an aseptic uretero-enterostomy. J. A. M. A. 94: 1748-1750, May 31, 1930.
34 Coffey, R. C.: Transplantation of the ureters. Ann. Surg. 91: 908-923, 1930.
35 Kretschmer, H. L.: The treatment of carcinoma of the bladder by surgical diathermy. J. A. M. A. 95: 1728-1730, Dec. 5, 1930.
36 Smith, G. G.: The treatment of bladder carcinoma by irradiation and diathermy. Idem, 1730-1734.
37 Barringer, B. S.: The radium treatment of cancer of the bladder. Idem, 1734-1736.
38 Bonney, C. W.: Genito-urinary diseases. Progressive Medicine, Dec. 1930, pp. 125-156.
39 Andrus, E. C. and Alyea, E. P.: The circulatory complications of prostatectomy. Surg. Gynec. Obst. 50: 864-869, May 1930.
40 Keyes, E. L.: Prospects of the prostatic. Penna. Med. J. 33: 672-677, July 1930.
41 Hare, H. A.: Therapeutic points in urological procedures. M. J. & Rec. 131: 464-466, May 7, 1930.
42 Caulk, J.: Obstructive lesions of the prostate. J. A. M. A. 94: 375-381, Feb. 8, 1930.
43 Young, H. H. and Colston, J. A. C.: A note on the value of Young's radical operation for carcinoma of the prostate. J. Urol. 23: 246-247, Feb. 1930.
44 Smith, G. G.: Total perineal prostatectomy for cancer. J. Urol. 22: 377-396, Oct. 1929.
45 Barringer, B. S.: Carcinoma of the prostate. Ann. Surg. 43: 326-335, Jan. 1931.
46 Smith, G. G. and Peirson, E. L.: The value of high voltage x-ray therapy in carcinoma of the prostate. J. Urol. 23: 331-341, March 1930.
47 Blatt, Paul: Uber die maligne entartung des postataadenoma. Arch. f. klin. Chir. 160: 544-553, July 31, 1930.
48 Meherin, J. M.: Ischiorectal prostatectomy. Arch. Surg. 20: 438-447, 1930.
49 Crabtree, E. G.: Surgery of the fibrous prostate. Am. J. Surg. p. 958, May 1930.
50 Guiterrez, R.: Later results of surgery of the seminal vesicles. J. A. M. A. 93: 1944-1951, Dec. 21, 1929.
51 Moore, C. R.: The physiologic effects of non-living testis grafts. J. A. M. A. 24: 1912-1915, June 14, 1930.

THE COUNTY MEDICAL SOCIETIES OF NEW YORK AND OTHERS OPPOSE A MOVEMENT TO PROVIDE FACILITIES FOR THE APPLICATION OF THE COFFEY-HUMBER TREATMENT OF CANCER

Certain claims for the efficacy of extract of suprarenal glands in the treatment of cancer as suggested by Dr. Walter B. Coffey and Dr. John D. Humber of San Francisco led the Better Health Foundation of New York, Inc., to apply for permission to establish a laboratory and clinic on the estate of Mrs. Grace Connors, Huntington Harbor, Long Island, for the use of this method. Mrs. Connors has deeded her property to the Foundation.

Dr. John A. Hartwell, President of the New York Academy of Medicine, opposed the granting of the petition. The Department of Hospitals and the City Health Department united in this opposition.

The hearings were conducted by the State Board of Social Welfare, which appointed a subcommittee to bring in a report. This committee submitted its findings with recommendations as follows:

"From a careful study of the evidence presented to it the committee is convinced that there is no public need for the establishment of a dispensary as described in the application in question for the following reasons:

"First, no evidence was offered convincing the committee that the treatment proposed cannot be properly given by competent scientists and physicians for the purpose of conducting scientific studies of the effects of same, both experimentally and clinically, in institutions now existing.

"Second, it appears to your committee that competent scientists and physicians have offered to conduct such scientific studies and to use said treatment, provided the patented suprarenal cortex extract necessary to same be supplied by Drs. Coffey and Humber, the owners of the patent under which it is controlled.

"Third, it appears to committee that available and ample facilities already exist in the territory described in the application for the carrying on of the treatment in question, and that persons and authorities having control thereof have offered and still offer to place them at the disposal of competent scientists and physicians for the purpose of carrying on the treatment in question and making the desired studies both experimentally and clinically.

"The committee is of the opinion that it is unwise to set up in the vicinity of New York a special dispensary and clinic for the administration of a patented extract or serum as now proposed. It has been the policy of the board for some time not to approve medical institutions for any single method of therapy and the committee sees no substantial reason for changing its previously adopted policy in this respect."

In regard to finances, the committee found that the corporation organized in New York had no money with which to proceed, but held the deed to the Connors property and planned to sell the furniture and fixtures of an appraised value of $29,078 to provide maintenance expenses.

No claim of a cancer cure was made for the treatment, but its sponsors maintained that it afforded great relief from pain.

The Board refused permission to allow the use of the Long Island Estate for this purpose.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17221

INTERMITTENT UPPER ABDOMINAL PAIN WITH FEVER AND LOCAL TENDERNESS

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. LELAND S. MCKITTRICK: This is the case of a woman of fifty-nine years who first came into this hospital in January 1930. She came with a history that the day before entry she had a very sudden severe attack of pain in the epigastrium which went through to the back, accompanied by nausea. That pain had persisted, she had had a chill and had called her doctor. He considered her to be an emergency case, gave her morphia and sent her in to this hospital.

The history prior to that was negative until three weeks before entry. Then there was an indefinite history of bloating after eating. There was never any severe pain with it and one would not have thought much about it had it not been for this very severe attack of pain.

She was a rather obese woman, her general physical condition not too bad. She was having severe intermittent epigastric pain at the time of admission. But along with that intermittent pain was a temperature on admission of 103° by rectum and much spasm and tenderness in the right upper quadrant. Manifestly the physical examination was characteristic or at least extremely suggestive of acute gall bladder. But the weak point about the findings and the diagnosis was the presence of intermittent pain. So she was sent to the ward under pretty careful observation. The temperature, which was 103° by rectum when she came in, went down. The pulse was not rapid, 100 at entrance, and dropped down to 80 or 90.

I saw her the morning after admission. She still had severe intermittent colieky pain in the epigastrium, so that we made a diagnosis, in spite of the tenderness which she had in the right upper quadrant, of small intestinal obstruction, not entirely complete. On the premises of that diagnosis we operated upon her.

At operation a right paramedian incision was made. She had definite obstruction of the small bowel which proved to be due to a large gall stone which had completely occluded the ileum. The bowel below it was collapsed, above it distended. The stone was removed through a longitudinal opening and the bowel closed transversely. Further palpation within the abdomen revealed a smaller gall stone in the sigmoid. This was readily taken out through the rectum. She had a perfectly uneventful convalescence and left the hospital seventeen days after her operation.

We saw or heard nothing more from her until January 14 of this year, when she again came in to the Emergency Ward. She was very sick. Her story again was not very clean-cut. She said she had been perfectly well until three days before she came in. Then she again had a severe though not too bad pain in the epigastrium. It was not her usual type of pain. I asked her specifically if the pain was the same type of pain which she had a year ago. She said no, that this was a steady pain. Five or six hours after it began she had a very severe attack of pain that doubled her up and was quite exhausting. She then came into the hospital.

When I saw her she was manifestly extremely uncomfortable. She was lying in bed, very restless and complaining bitterly of great pain and soreness in the upper part of the abdomen. The temperature was 102°, the pulse 101. On examination she showed exquisite tenderness throughout the entire right half of the abdomen, the point of maximum tenderness being about two inches to the right of the umbilicus. No mass could be felt. There was not much tenderness on the left. The white blood cell count was approximately 13,000. It seemed as though she again undoubtedly had an acute gall bladder, possibly with perforation. Since at the previous admission a gall stone of sufficient size to cause obstruction had found its way into the bowel, it seemed fair to assume that at the time there had been an opening between the gall bladder and the duodenum. If such was the case, that opening was either still present or the gall bladder was firmly adherent to the duodenum, and any attempt at removal would mean opening the bowel. Therefore any operative undertaking at this time carried with it many technical difficulties not present in the usual attack on the gall bladder. It was our opinion that her general and local condition would not permit anything but a very simple procedure. It therefore seemed reasonable to hope that she would localize a definite abscess which could be drained under novocain.

She was sent to the ward and put upon a strict peritonitis régime. She felt very much better the next morning. Her temperature and pulse were down and the white cell count had dropped. There was no question in anyone's mind, including her own, but that a very distinct improvement had taken place. The abdomen was less tender. She went another day and her progress seemed to continue to be very satisfactory. She was taking her fluids and was not vomiting. We were all quite encouraged.

Three days after she entered she did not look quite so well, but there was not any sufficiently definite change to warrant any change in treatment. Late that afternoon, however, she complained of very severe pain in the left chest, markedly increased by taking a breath. Her condition had changed remarkably; she had become rather cold and was covered with more or less perspiration. The respirations were rapid. It was manifest that some great change had taken place. I came down and saw her. It seemed quite obvious that we had lost. The pulse was quite good, her color bad. Her distention had increased. There was considerable tenderness all over the abdomen, but particularly in the gall bladder area. The respirations were rapid. It seemed to all of us that there was very little anyone could do to relieve the condition. We felt however that it would be perfectly easy to put a little novocain in the most tender area and at least drain this region. That could be done without affecting any chest complication that she might have.

She was therefore taken to the amphitheater. A small amount of novocain was put into the right upper abdomen and an opening was made through the abdominal wall. Everything was adherent underneath. I was surprised on opening into a small cavity to find considerable old dark blood and bile-stained fluid. I put my finger into the cavity and got a good deal of old dark bloody material with a little bile. We had apparently opened directly into a necrotic gall bladder. A cigarette wick was placed into the cavity and another on top of the liver and the abdomen closed very loosely around the wick. She went back to the ward.

Her condition was no different in the end from what it was at the beginning. She failed steadily during the rest of the night however, and died in the morning.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Acute cholecystitis.
Hemorrhagic pancreatitis.
Subdiaphragmatic abscess.
Peritonitis.

ANATOMIC DIAGNOSES

Cholecystitis with perforation and abscess formation.
Fistula between the gall bladder and the duodenum.
General peritonitis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: Autopsy showed a fistula between the gall bladder and the duodenum, as we knew it must show from the history of having found a large gall stone in the intestinal tract. The fistula had contracted down by the formation of scar tissue into a narrow passage barely admitting a probe. It must originally have been very much larger. At this stage no stone could possibly have got through it. There was also a very definite abscess cavity just outside the gall bladder, unquestionably the cavity into which Dr. McKittrick opened and into which he put his drain. There was a generalized peritonitis, evidently the result of spread from this local inflammatory area to the rest of the peritoneal cavity occurring during the last few hours of life. One would rather suppose that the spontaneous fistula from the gall bladder into the duodenum would have been successful in draining the infectious area, and that further drainage would not have been necessary.

DR. MCKITTRICK: Were any stones found at all?

DR. MALLORY: No, not any.

DR. MCKITTRICK: Was there any explanation as to why she had this flare-up?

DR. MALLORY: No. The gall bladder itself was very small, evidently fibrotic, and microscopically showed both acute and chronic inflammation. Both the cystic and the common ducts were patent, and there was also this fistula into the duodenum.

She had as an incidental finding a diverticulum of the duodenum just at the side of the papilla, in the usual place. I do not believe however that that played any part in the symptomatology.

DR. MCKITTRICK: In looking back at this case one of course wonders what might be done in a future case to prevent a similar outcome. The first question was: should we have the patient come back after a period of two or three months and at that time attempt a more careful study to determine what the pathology is, or possibly, recognizing that there was important pathology there, remove the gall bladder and the stones which I should assume in many instances to be present? In a condition similar to hers, which one would recognize as distinctly abnormal, one should certainly not dismiss the patient, but should at least see that she reports for a careful follow-up.

The diagnosis of intestinal obstruction due to a gall stone is rarely made. It should probably have been made in this instance. As Dr. Daniel F. Jones has aptly said in relation to carcinoma of the colon, "One does not find four-leaf clovers unless one is looking for them," so in these more or less unusual conditions, I believe that whenever a diagnosis of small intestinal obstruction is suspected one should inquire carefully for a history of gall stone attacks. If that is obtained, especially if there is evidence of an inflammatory reaction in the gall bladder area and no other cause for the obstruction is found, a diagnosis of intestinal obstruction due to gall stone would be justified.

DR. FREDERICK T. LORD: Isn't it very unusual for a gall stone to perforate at the first attack?

The impression was that this was the first attack.

DR. MCKITTRICK: There was an indefinite history of bloating after meals, but no definite symptoms of gall stones. It is very possible that in taking the history they may have overlooked something which would have made us more suspicious of that history on looking back.

DR. LORD: Isn't it very uncommon not to have a history of a preceding attack?

DR. MCKITTRICK: I do not know.

A PHYSICIAN: I think it is very rare to have an absolutely symptomless gall stone. I should think if this patient had been x-rayed three months after the operation one might have got some barium right up to the gall bladder.

CASE 17222

SUDDEN DEATH FOLLOWING CHOLECYSTECTOMY FOR EMPYEMA OF THE GALL BLADDER WITH STONES

SURGICAL DEPARTMENT

PRESENTATION OF CASE

DR. REGINALD H. SMITHWICK: This case is very similar to the one Dr. McKittrick has just reported.

The patient was a rather elderly woman, sixty-seven years of age.

Past history. Forty-six years before this illness she had one child. Ever since the birth of that child she had had a certain amount of indigestion, chiefly gas after eating certain foods. She never had any particular discomfort until twenty years before this illness, when she had one attack of severe right upper quadrant pain going through to the back lasting for forty-eight hours, during which time she had a doctor and was given morphine twice. During the past twenty years she had had no trouble of any sort except a certain amount of gas, not very marked.

Two days before she came into the hospital she had a gradual onset of discomfort in the right upper quadrant. She was a little nauseated but did not vomit. The discomfort became more marked. After about twenty-four hours she found that she was very tender under the right costal margin and that it hurt her to move.

She came into the hospital with a temperature of 101°, a pulse of 100 and a white cell count of 22,000. There was considerable tenderness in the right upper quadrant well localized to the gall bladder region, where a firm hard mass could be easily felt. There was not much spasm.

It was thought that she had an acute gall bladder, probably empyema with a certain number of stones, and we thought she would quiet down. She was not having any severe pain; in fact she had not had any severe pain with this attack, just a sensation of discomfort and pressure with nausea and local tenderness. She remained in the hospital in bed and was put on a limited fluid intake at first. Within twenty-four hours the tenderness subsided to a large extent and the palpable mass disappeared. She remained in bed. At the end of a week her temperature was normal, her pulse 80 and her white cell count 8,000. She seemed to have quieted down very well. It was thought best to take out her gall bladder at this point. She was not given a Graham test because of the mass and tenderness in the region which everybody thought without much question was her gall bladder.

She was operated on under spinal anesthesia through a transverse incision. The gall bladder was very adherent to the surrounding structures. It was gangrenous and had perforated at the ampulla. Between this perforation, which was about the size of a thumb, and the duodenum there was an abscess cavity about the size of an egg. This contained thick pus and many stones. The gall bladder was full of stones, probably 200, varying from the size of a pea to that of a large grape. The duodenum was much indurated and somewhat discolored, perhaps a little purplish. There was a certain amount of fibrin and inflammatory reaction, but no definite lesion in the duodenum could be found at that time. Most of her gall bladder was removed. A small catheter was passed through the cystic duct into the common duct and normal looking bile obtained. She was not jaundiced and never had been. This little catheter was left in place, a cigarette wick placed in the region where this abscess cavity had been and a rubber drain in the region of the upper pole of her right kidney. The wound was closed.

She had an uneventful convalescence. Her temperature and pulse rose hardly at all, she took fluids and everything went well.

About three days after the operation the wound became extensively septic. Her bowels moved well spontaneously. Her pulse was between 80 and 90. Her temperature after two or three days began to swing a little because of the sepsis in the wound. She felt and looked well. On the fifth day she had a normal bowel movement. There was no distention. She passed gas. Her abdomen was perfectly flat and soft that evening.

On the sixth day at half past two o'clock in the morning she suddenly became distended, cold and clammy. Her blood pressure fell. We gave her intravenous glucose, 700 cubic centimeters. The blood pressure rose to normal and rapidly fell again. She was tender across the lower abdomen and was becoming increasingly distended. She died at half past eight o'clock in the morning. The picture was obviously one of spreading overwhelming sepsis with falling blood pressure.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Empyema of the gall bladder with perforation and abscess formation.

ANATOMIC DIAGNOSES

Cholelithiasis.
Perforation of the gall bladder with abscess formation.
Perforation of the duodenum.
Pulmonary collapse.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: At autopsy we found a localized abscess in the general region of the gall bladder. Its medial wall was formed by the lateral wall of the duodenum, which for a distance of 5 centimeters was partially gangrenous, with a small perforation at its midpoint. The infection had not as yet extended into the general peritoneal cavity, although if she had lived a few hours more I imagine it probably would have.

There was nothing of significance in the rest of the autopsy except a very moderate degree of pulmonary collapse.

This case is very similar to Dr. McKittrick's, Case 17221, having been caught just at the acute stage. An infected gall bladder perforated to form an abscess, which in turn had started to burrow its way through the outer wall of the duodenum. In a few days more it is quite possible that it would have spontaneously drained itself if it had been let alone. That could not possibly have been told before operation, however. If she had not been operated upon a spontaneous cholecystoduodenal fistula would probably have developed. Dr. Mixter noticed at the operation that the outer duodenal wall was already involved, and was afraid of perforation occurring during the operation.

DR. SMITHWICK: I saw the autopsy on this patient. It is interesting, I think, that perhaps if she had had more adequate drainage this might not have happened. There was a marked local abscess in the region of the operative field and thick yellow pus extending up over the diaphragm and fairly well bottled up in the right upper quadrant. There was considerable free fluid in the pelvis with beginning injection of all the small intestines, but the character of the fluid in the general abdominal cavity was nothing like that in the region of the gall bladder bed. I suppose there was an intermittent leakage of the duodenum. I imagine she collected so much in the right upper quadrant that it spilled down into the right lumbar fossa and caused a general peritonitis. Things were so indurated that we could not possibly have sutured anything over the duodenum. We could not have done much about it so far as I can see.

DR. LELAND S. MCKITTRICK: Where did the drain come out?

DR. SMITHWICK: It was brought out away at the right side.

DR. MCKITTRICK: Did that seem to give perfectly good direct drainage?

DR. SMITHWICK: Obviously it did not drain. There was a large amount of pus in that region. There must have been about 8 to 10 ounces of pus, and she was not draining material of that character into the dressing. I think that perhaps if she had had more drainage and the wound had been closed more loosely she might have taken care of the whole thing.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

HOMER GAGE, M.D. JOHN W. BARTOL, M.D.
ROGER I. LEE, M.D. ROBERT B. OSGOOD, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D. STEPHEN RUSHMORE, M.D.
REID HUNT, M.D. HANS ZINSSER, M.D.
JOHN P. SUTHERLAND, M.D. BENJAMIN WHITE, PH.D.
GEORGE R. MINOT, M.D. HENRY R. VIETS, M.D.
FRANK H. LAHEY, M.D. ROBERT N. NYE, M.D.
SHIELDS WARREN, M.D. ROBERT M. GREEN, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. H. H. AMSDEN, M.D.
R. H. MARCOTTE, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
J. A. WARK, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 165 Newbury Street.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 165 Newbury Street, Boston, Mass.

THE TREATMENT OF PNEUMONIA

FORTY years ago, in 1891, Osler wrote the following, in regard to the treatment of pneumonia: "Pneumonia is a self-limited disease, and runs its course uninfluenced in any way by medicine. It can neither be aborted nor cut short by any known means at our command. Even under the most unfavorable circumstances it will terminate abruptly and naturally without a dose of medicine having been administered[1]." He did, however, call attention to the value of venesection, measures for lowering the temperature and supporting the heart, and the general care of the patient in regard to diet, sleep, catharsis, etc.

As the years have passed, little of value has been added, until comparatively recently, to our knowledge of the treatment of this condition. The older principle of a self-limited disease naturally cannot be overlooked even at the present time, but now we have not only specific forms of treatment but new means of conserving the strength of the patient, neutralizing the toxin of the disease, and treating the complications. These methods are all well described by Dr. Campbell P. Howard of Montreal in a recent publication[2].

Of the measures to conserve the strength of the patient and relieve his symptoms little need be said in regard to rest, fresh air, diet, a liberal water intake and hydrotherapy. Howard considers alcohol practically valueless, if not actually harmful, as a cardiovascular stimulant, except in habitual users of alcohol. Strychnine he also omits, as it increases the tendency to nervous excitement and irritability. Digitalis, on the other hand, he considers a valuable drug in pneumonia, though he thinks it has been abused in the past. It is very easy to give the drug when there are no definite signs indicating its use and Howard would limit the exhibition of it to cases only where there is coexisting heart disease, or when auricular fibrillation or some other evidence of serious myocardial change makes its appearance. He is distinctly in agreement with the Bellevue Hospital Committee, who recently decided unanimously against the routine administration of digitalis to patients suffering from lobar pneumonia.

The use of oxygen to relieve cyanosis is a valuable procedure, although, unfortunately, only a few hospitals in this country have properly equipped oxygen chambers for pneumonia patients. The success of oxygen treatment depends upon three factors: first, getting as much gas into the alveoli as possible; secondly, starting the treatment early, before irreparable damage has been done because of anoxemia; and, thirdly, maintaining the administration until cyanosis disappears. When no special apparatus is available, an ordinary anesthetic mask may be employed. By the intelligent use of oxygen, Howard points out, cyanosis ought to diminish or disappear, the pulse improve, the rate of respiration lessen, and by decreasing the restlessness or delirium, the patient often notes marked subjective improvement.

Howard has more to say about specific measures by serum and vaccine in the treatment of this disease. The sera currently employed are the Rockefeller antipneumococcus horse serum, Kyes' domestic fowl serum, Huntoon's pneumococcus antibody solution, and Felton's concentrated serum. While it is impossible to note all the details in regard to each one of these methods of treatment, it should be observed that Howard's conservative views are, briefly, as follows:

The Rockefeller serum gives no change in the rate of resolution of the lung tissue already involved and does not prevent the development of complications such as empyema, pericarditis, etc. The effect on mortality, however, is usually striking, although some physicians have reported very minor results from its administration. Apparently, the degree of potency of the serum is one of the prime factors in treatment.

As a final conclusion it would seem that one is justified in stating that the Rockefeller serum is capable of exerting a definite influence on the course of type I and type II pneumonia, when administered under proper conditions.

Kyes' serum is a polyvalent serum and therefore does away with the delay necessitated by typing the patient's sputum. It has been reasonably successful in the treatment of pneumonia and a number of patients with pneumococcus meningitis, a notoriously fatal type of pneumococcus infection, have been cured by its use.

Huntoon's serum seems also to yield very good clinical results, but the severe thermal reactions that follow its intravenous use militate against the general adoption of it by the medical profession.

Felton's serum has, perhaps, the best record of all and Howard is enthusiastic about the effects of its use in type I and type II pneumonias and, to a less extent, in type IV. He has found it of less value in type III, but he "unhesitatingly urges its use in every case of pneumonia without exception as to type, provided one sees the patient in the first three days of the disease".

There seems to be little evidence, according to Howard, that vaccines or convalescent serum are of value in treating patients with pneumonia. Of the complications of the disease, empyema, as always, demands surgical intervention. There is no new treatment for meningitis, except, possibly, the use of Kyes' serum, as noted above.

REFERENCES

1 Osler, Sir William: The Principles and Practice of Medicine. New York: D. Appleton & Co., 1892, p. 529.
2 Howard, Campbell P.: The Diagnosis and Treatment of Pneumonia. Oxford Monographs on Diagnosis and Treatment, Vol. X. New York: Oxford University Press, 1931.

LADIES ARE INVITED TO ATTEND THE SOCIAL FUNCTIONS OF THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY

THE President and other officers of the Society wish to announce that ladies are especially invited to attend the Lawn Fête at the Larz Anderson estate, 69 Avon Street, corner of Pond Street and Goddard Avenue, Brookline, on Monday afternoon, June 8 at four o'clock and also the exercises of the evening of the same day at 8:30 o'clock at the Museum of Fine Arts, 479 Huntington Avenue, including the President's Reception which will follow the delivery of the Shattuck Lecture.

It is hoped that the Fellows will appreciate the value of these social features and encourage the attendance of ladies in conformity with the trend of the present day.

Should we not now recognize the advisability of creating interest in the formation of a branch of the Woman's Auxiliary to the American Medical Association, in Massachusetts?

Women are taking increasing interest in the activities of the medical profession and contribute to the enjoyment of such gatherings. Massachusetts should encourage this custom.

Please remember that the President wishes to extend the courtesies of his office to the wives of Fellows of the Society.

THE PREPARATION OF CHILDREN FOR SCHOOL LIFE

EXCEPT for educational propaganda and public health preventive measures the preschool child is too often permitted to live the few years antedating the systematized development of his intellect without careful supervision of his body and its functions. If he happens to live in a city where local and state officials distribute informative literature he is more likely to have the advantages of being examined in health centers or clinics but in less progressive places a study of the child's physical well-being is not very generally carried on unless there are variations from the normal growth. When children enter school they are examined by the school nurse and school physician and obvious departures from physical well-being noted and referred to parents, but in too many cases there is evidence of inattention to apparent pathology by parents.

Surveys of preschool children show that there are at least eleven million in this group or nearly half the number of the population of children of school age and a great proportion of them are denied that degree of effective parental supervision which is their right. The difficulty seems to be that for one reason or another parents are not qualified for the important duties of guardians of the health of their children, and must be made to understand that regularly repeated examinations by the family doctor are essential.

In these days of less general sickness it is apparent that the doctor has not cultivated that field of practice which will be expected of him sooner or later in dealing with the preventable ills of early childhood.

This responsibility is emphasized in the letter of Dr. Rubin on page 1121 of the issue of May 21 and if the continued inattention to this rich field of practice persists the profession will find that state medicine will still further displace the family doctor.

If, with the advent of the baby, parents were told of the many dangers which must be avoided the doctor would more generally be given the high office of conservator of the health of the growing child and keeping the youngsters well.

It depends on the doctor's ability to adjust himself to the evident demand or he will have to accept the inevitable loss of prestige and practice.

The appeal of Dr. Rubin puts the case squarely up to the doctor.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

MASON, ROBERT L. A.B., M.D. Harvard University Medical School 1922. F.A.C.S. Formerly, Assistant Surgeon, Department of Surgery, Lahey Clinic. Now, Surgeon, Polyclinic, Memphis, Tennessee. Address: Polyclinic, Memphis, Tennessee. Associated with him is:

WARREN, SHIELDS. A.B., M.D. Harvard University Medical School 1923. Pathologist, New England Deaconess Hospital, New England Baptist Hospital, et al., Collis P. Huntington Memorial and Robert B. Brigham Hospitals. Instructor in Pathology, Harvard Medical School. Address: 195 Pilgrim Road, Boston. Their subject is: "Embolism of the Abdominal Aorta." Page 1129.

WALKER, IRVING J. A.B., M.D. Harvard University Medical School 1907. F.A.C.S. Clinical Professor of Surgery, Medical School of Harvard University. Surgeon-in-Chief, Harvard Surgical Teaching Service, Boston City Hospital. His subject is: "Some Changing Aspects of Surgery." Page 1133. Address: 520 Commonwealth Avenue, Boston.

BOND, E. D. A.B., M.D. Harvard University Medical School 1908. Medical Director, Institute, Pennsylvania Hospital. Professor of Psychiatry, University of Pennsylvania. President, American Psychiatric Association 1929-1930. His subject is: "Work and Purposes of the Institute for Mental Hygiene." Page 1138. Address: 111 North 49th Street, Philadelphia, Pa.

WASHBURN, FRANK H. M.D. Tufts College Medical School 1899. F.A.C.S. Director, Holden Clinic. Surgeon and Chief of Staff, Holden District Hospital. Consulting Surgeon, Rutland State Sanatorium. His subject is: "The Rôle of Ethical Conduct in the Successful Medical Career." Page 1144. Address: Holden Clinic, Holden, Mass.

COLBY, FLETCHER H. B.S., M.D. Harvard University Medical School 1918. Associate Urologist, Massachusetts General Hospital. Surgeon to Outpatients, Palmer Memorial Hospital. Assistant in Genito-Urinary Surgery, Huntington Memorial Hospital. Assistant in Surgery, Harvard Medical School. His subject is: "Progress in Urology." Page 1152. Address: 6 Commonwealth Avenue, Boston, Mass.

MISCELLANY

MORTALITY RATES

Telegraphic returns from 81 cities with a total population of thirty-six million for the week ending May 9, indicate a mortality rate of 12.2 as against a rate of 13.1 for the corresponding week of last year. The highest rate (21.9) appears for Utica, N. Y., and the lowest (6.8) for South Bend, Ind. The highest infant mortality rate (17.4) appears for Camden, N. J., and the lowest for Dayton, Ohio, and Tacoma, Wash., which reported no infant mortality.

The annual rate for 81 cities is 13.6 for the nineteen weeks of 1931, as against a rate of 13.3 for the corresponding weeks of 1930.—*Department of Commerce.*

NEW YORK CITY MUST BUILD INCINERATORS TO DISPOSE OF GARBAGE

The Supreme Court of the United States has decreed that New York City must cease disposal of its garbage in a way to damage the shores of New Jersey and that the city must erect adequate incinerators to obviate the nuisance now existing.

This will necessitate the creation of fifteen incinerators at a cost of $17,375,000. This does not provide for sewage disposal.

This action may be a precedent which will require other coastal cities to relieve adjacent regions of nuisances of this type.

It may be the beginning which will lead to forms of sewage disposal other than discharge into the ocean.

A BROADCASTING MESSAGE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

THE USE AND ABUSE OF LIVER DIET*

BY DR. C. W. HEATH

Without doubt there are few of you listening in who are taking liver every day as your doctors are prescribing it for you. It is not to you that I wish to talk so much as to the individuals whose state of health would be greatly benefited by taking enough liver or a potent substitute. Of course, all people in ill health do not need to eat liver; and I dare say, many of you are taking liver, believing it will perform some miracle, when it is, in fact, only providing you with a good food. Only a small part of all the people who are now ill may have their health improved by the use of liver. However, if you like liver, there is no reason why you should not eat and enjoy it. It contains many kinds of substances good for your body, but so do lots of other foods. Liver and liver extracts are beneficial chiefly for individuals who suffer from pernicious anemia. It is about this disease and its control with liver that I wish to talk to you today.

Now, I don't want you to be like medical students who hear a lecture on typhoid fever and then go home and think that they have typhoid fever. This lasts until the next day when they listen to a lecture on tuberculosis, after which they forget about typhoid fever and decide that what is the matter with

*Broadcast April 8, 1931. Massachusetts Medical Society and the Massachusetts Department of Public Health.

them is tuberculosis. This lasts until they hear all about cancer, and so forth.

I am first going to tell you about some of the symptoms of pernicious anemia. This disease occurs in men and women especially after forty years of age. Many of the symptoms of pernicious anemia are those of just anemia, or weakness of the blood. There are vastly more people who have anemia which may be due to a great variety of causes than there are people who have anemia due to the disease, pernicious anemia. There are many symptoms of anemia. Pallor, or paleness, is usually associated with anemia, but an individual may be anemic and not pale. Such symptoms as weakness, loss of strength or ambition are common. Abnormal breathlessness on exertion is a symptom of pronounced anemia, as it is of heart disease and other conditions. Anemia does not mean simply debility, languor, or general weakness, or the way old-fashioned people felt when they thought they needed a spring tonic, although these may be symptoms of anemia. The paleness, weakness, and breathlessness are present because of the poor strength of the blood. These symptoms are not enough for you to conclude that your blood is poor. Other diseases may produce somewhat similar symptoms. Your doctor is the only one who can really tell whether your blood is poor by testing it by the use of several procedures, some of which necessitate the use of a microscope.

There are symptoms characteristic of pernicious anemia which are not dependent upon the anemia, but are related to the digestive system and the central nervous system. The tongue may be sore and become beefy in appearance, raw or shiny and smooth. One's hands and feet may feel as if they were persistently asleep. There even may be trouble in walking and in controlling the arms and legs.

Pernicious anemia was given its name many years ago because it really was "pernicious". Few patients lived after the disease was evident for more than four years. Not so today. In 1926, Dr. George R. Minot and Dr. William P. Murphy of this city announced the alleviation of 45 consecutive cases of pernicious anemia by a liver diet. The treatment was adopted very quickly throughout the world.

The diet originally prescribed by Dr. Minot and Dr. Murphy included not only the taking faithfully every day about one-half pound of liver, but, also included red meats—namely, fresh beef and mutton, as steak, roasts, chops, etc.; fresh and stewed fruits in large amounts daily; green and leafy vegetables. The diet did not include, in fact warned against, the taking of fatty foods, such as fried foods, cream, butter, and heavy, soggy pastries and gross sweets. The liver contains the essential life-saving principle, and other foods of the diet are simply suitable foods for most people with pernicious anemia. A diet for one person may be totally unsuitable for another person afflicted with the disease. The individual with pernicious anemia must not just take liver daily; he must take for the rest of his life enough liver or a potent substitute daily for his given case. The best amount for each case may vary widely, but the amount is always relatively large.

Liver has long been known as a good food. In fact, our ancestors actually believed it was "good for the blood". But it was never used in such large amounts or so persistently until Dr. Minot demonstrated its value. Not so many years ago, if any one ate a raw tomato it was believed that he would die an immediate and awful death. We still have many fears about what he should or should not eat, but, like the tomato, liver has come to be included among the regular articles of good food.

There are many ways of taking liver in agreeable form. Simple broiled liver pleases many people. If a large amount is to be taken daily, raw beef or calves' liver pulp is found to be the most acceptable for most people. The best and simplest way to prepare raw liver pulp is to grind the liver twice through a grinder and to mix it with ice-cold orange juice or ginger ale so that it is watery enough to drink. A half pound (8 ounces) of liver as prepared yields often no more than 5½ ounces of liver to eat. When your doctor prescribes a half pound of liver a day, he wants you to eat half a pound of liver a day. If you buy just half a pound you will undoubtedly eat considerably less than this. Pig's liver may be used, but if raw liver is to be used, calves' or beef liver is to be chosen rather than pig's or lamb's liver. In the process of cooking liver, some of the juices are lost which are valuable for the patient, so that if liver is cooked it should probably not be cooked too thoroughly.

Extracts of liver effective for pernicious anemia and given in proper doses for each case are entirely as satisfactory for the pernicious anemia patient as the eating of large amounts of liver. Some of these extracts are weaker than others and individuals should not take extracts of liver without the advice and approval of the doctor. Some of the strength of the liver is lost in the complicated processes to which the liver is subjected when it is extracted so that when the extract is labeled "represents, or derived from 100 grams of liver", it does not indicate that the amount of extract is equivalent in potency to eating 100 grams of liver.

Other animal organs besides liver are known to contain to some extent the principle which is effective for pernicious anemia. Among these are kidney and pig's stomach. Pig's stomach as such, or as a dried pharmaceutical preparation, rivals liver and liver extract in its effectiveness.

Dr. William B. Castle has described a way in which an extract of beef liver may be made in your own home and kitchen with relatively little expense or undue trouble. Your physician may obtain a recipe as given by Dr. Castle for making a liver extract at home. He may obtain this by writing to the Massachusetts State Department of Health, Boston.

Liver is also helpful in some other kinds of anemia —for example, the anemia or weakness of the blood that results from repeated hemorrhage; that is to say, loss of blood from any cause such as hemorrhoids (piles), ulcers, etc. In these forms of anemia, however, other sorts of treatment, such as proper amounts of iron, are usually of more importance than liver, and liver extracts effective for pernicious anemia are usually of no value for these other types of anemia. The promiscuous use of liver is to be decried. The wise use of liver can be of colossal value. Many people are taking extracts of liver as well as eating liver, thinking that the product is unusually beneficial for them, when extract for them simply represents money wasted and liver is simply supplying a good food.

Large amounts of liver may be harmful, but not often. The person who suffers from kidney disease which is sometimes mistaken for pernicious anemia, at times may be made sicker by taking large amounts of liver.

Let me warn you that the disease, pernicious anemia, as well as any of the many forms of anemia, are conditions for the doctor to treat, just as any ailments should be prescribed for by the doctor. If you have any of the symptoms I have mentioned, see your doctor. If you have anemia, or any other ailment, you cannot possibly treat yourself properly. You should always have your doctor's good advice for your own individual case. Please remember that there are a great many people today eating large amounts of liver who have no reason whatsoever for doing so, unless it is that they enjoy it. But also remember that liver is an excellent food for many nutritional purposes, and when taken with regularity and in adequate amounts can control the disease, pernicious anemia.

SICKNESS AMONG INDUSTRIAL EMPLOYEES IN THE SECOND HALF OF 1930

According to the United States Public Health Service, a favorable health record among industrial workers during the second half of 1930 is indicated from reports of a group of industrial sick benefit associations covering about 135,000 male industrial employees. This record is based upon the frequency of claims for sickness and non-industrial accident benefits covering cases causing disability for eight consecutive calendar days or longer. A low rate of cases causing more than one week's disability was recorded also for male employees of the same industrial establishments in the first half of 1930.

Although available morbidity rates are based on sample data that may be too small to be representative, favorable mortality rates in 1930 suggest that the relative low incidence rates of disabling sickness among the men included in the record under discussion may have prevailed generally.

That the favorable sickness record was due largely to the absence of serious epidemics of respiratory nature is indicated by the non-respiratory disease rate which differed little in 1930 from that of 1929 and 1928. It will be recalled that the mild wave of influenza did not get under way until January, 1931. —*United States Public Health Service.*

CORRESPONDENCE

The Massachusetts Medical Society

TO THE OFFICERS OF THE DISTRICT MEDICAL SOCIETIES AND THE MEMBERS OF THE AUXILIARY COMMITTEE ON STATE AND NATIONAL LEGISLATION

May 25, 1931.

Dear Doctor:—

As Chairman of the Joint Committee on State and National Legislation of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society, I take pleasure in expressing to you the thanks and the appreciation of the Committee for your assistance. You greatly aided us in our efforts to present to the members of the Legislature, and to their committees, the collective opinion of the medical profession, and the ground on which this opinion is based in regard to the bills presented to the State Legislature which concern the public health, medical education, and the practice of the medical profession.

We believe that such a spontaneous representation by members of the profession has been especially effective this year, and you will be pleased to know that with the defeat of the bill for chiropractic registration in the House Wednesday, May 20, the last of the bills of the 1931 Session with which we were concerned has been disposed of, and all of them have been decided in accordance with our representations with the exception of the Compulsory Vaccination Bill in private schools, which was recommended favorably from Committee but was defeated in the Senate.

I am

Respectfully yours,

ROBERT B. GREENOUGH, M.D., *Chairman.*

AN ENDORSEMENT OF DR. RUBIN'S LETTER

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

Editor, *New England Journal of Medicine:*

I read with great interest the letter by Dr. Solomon H. Rubin, Acting Director of School Hygiene in Boston, recently published in your *Journal*,* in regard to his plan for coöperating with the family physician and the Boston Health Department in furthering the program for maximum possible physical fitness in children entering the Boston schools in the fall.

It seems to me that he has in his letter weighed very nicely the multiple responsibilities of his office. On the one hand, there is the tendency for officials in health work to become so conscious of

*See page 1121, New Eng. J. Med., May 21, 1931.

them is tuberculosis. This lasts until they hear all about cancer, and so forth.

I am first going to tell you about some of the symptoms of pernicious anemia. This disease occurs in men and women especially after forty years of age. Many of the symptoms of pernicious anemia are those of just anemia, or weakness of the blood. There are vastly more people who have anemia which may be due to a great variety of causes than there are people who have anemia due to the disease, pernicious anemia. There are many symptoms of anemia. Pallor, or paleness, is usually associated with anemia, but an individual may be anemic and not pale. Such symptoms as weakness, loss of strength or ambition are common. Abnormal breathlessness on exertion is a symptom of pronounced anemia, as it is of heart disease and other conditions. Anemia does not mean simply debility, languor, or general weakness, or the way old-fashioned people felt when they thought they needed a spring tonic, although these may be symptoms of anemia. The paleness, weakness, and breathlessness are present because of the poor strength of the blood. These symptoms are not enough for you to conclude that your blood is poor. Other diseases may produce somewhat similar symptoms. Your doctor is the only one who can really tell whether your blood is poor by testing it by the use of several procedures, some of which necessitate the use of a microscope.

There are symptoms characteristic of pernicious anemia which are not dependent upon the anemia, but are related to the digestive system and the central nervous system. The tongue may be sore and become beefy in appearance, raw or shiny and smooth. One's hands and feet may feel as if they were persistently asleep. There even may be trouble in walking and in controlling the arms and legs.

Pernicious anemia was given its name many years ago because it really was "pernicious". Few patients lived after the disease was evident for more than four years. Not so today. In 1926, Dr. George R. Minot and Dr. William P. Murphy of this city announced the alleviation of 45 consecutive cases of pernicious anemia by a liver diet. The treatment was adopted very quickly throughout the world.

The diet originally prescribed by Dr. Minot and Dr. Murphy included not only the taking faithfully every day about one-half pound of liver, but, also included red meats—namely, fresh beef and mutton, as steak, roasts, chops, etc.; fresh and stewed fruits in large amounts daily; green and leafy vegetables. The diet did not include, in fact warned against, the taking of fatty foods, such as fried foods, cream, butter, and heavy, soggy pastries and gross sweets. The liver contains the essential life-saving principle, and other foods of the diet are simply suitable foods for most people with pernicious anemia. A diet for one person may be totally unsuitable for another person afflicted with the disease. The individual with pernicious anemia must not just take liver daily; he must take for the rest of his life enough liver or a potent substitute daily for his given case. The best amount for each case may vary widely, but the amount is always relatively large.

Liver has long been known as a good food. In fact, our ancestors actually believed it was "good for the blood". But it was never used in such large amounts or so persistently until Dr. Minot demonstrated its value. Not so many years ago, if any one ate a raw tomato it was believed that he would die an immediate and awful death. We still have many fears about what he should or should not eat, but, like the tomato, liver has come to be included among the regular articles of good food.

There are many ways of taking liver in agreeable form. Simple broiled liver pleases many people. If a large amount is to be taken daily, raw beef or calves' liver pulp is found to be the most acceptable for most people. The best and simplest way to prepare raw liver pulp is to grind the liver twice through a grinder and to mix it with ice-cold orange juice or ginger ale so that it is watery enough to drink. A half pound (8 ounces) of liver as prepared yields often no more than 5½ ounces of liver to eat. When your doctor prescribes a half pound of liver a day, he wants you to eat half a pound of liver a day. If you buy just half a pound you will undoubtedly eat considerably less than this. Pig's liver may be used, but if raw liver is to be used, calves' or beef liver is to be chosen rather than pig's or lamb's liver. In the process of cooking liver, some of the juices are lost which are valuable for the patient, so that if liver is cooked it should probably not be cooked too thoroughly.

Extracts of liver effective for pernicious anemia and given in proper doses for each case are entirely as satisfactory for the pernicious anemia patient as the eating of large amounts of liver. Some of these extracts are weaker than others and individuals should not take extracts of liver without the advice and approval of the doctor. Some of the strength of the liver is lost in the complicated processes to which the liver is subjected when it is extracted so that when the extract is labeled "represents, or derived from 100 grams of liver", it does not indicate that the amount of extract is equivalent in potency to eating 100 grams of liver.

Other animal organs besides liver are known to contain to some extent the principle which is effective for pernicious anemia. Among these are kidney and pig's stomach. Pig's stomach as such, or as a dried pharmaceutical preparation, rivals liver and liver extract in its effectiveness.

Dr. William B. Castle has described a way in which an extract of beef liver may be made in your own home and kitchen with relatively little expense or undue trouble. Your physician may obtain a recipe as given by Dr. Castle for making a liver extract at home. He may obtain this by writing to the Massachusetts State Department of Health, Boston.

Liver is also helpful in some other kinds of anemia —for example, the anemia or weakness of the blood that results from repeated hemorrhage; that is to say, loss of blood from any cause such as hemorrhoids (piles), ulcers, etc. In these forms of anemia, however, other sorts of treatment, such as proper amounts of iron, are usually of more importance than liver, and liver extracts effective for pernicious anemia are usually of no value for these other types of anemia. The promiscuous use of liver is to be decried. The wise use of liver can be of colossal value. Many people are taking extracts of liver as well as eating liver, thinking that the product is unusually beneficial for them, when extract for them simply represents money wasted and liver is simply supplying a good food.

Large amounts of liver may be harmful, but not often. The person who suffers from kidney disease which is sometimes mistaken for pernicious anemia, at times may be made sicker by taking large amounts of liver.

Let me warn you that the disease, pernicious anemia, as well as any of the many forms of anemia, are conditions for the doctor to treat, just as any ailments should be prescribed for by the doctor. If you have any of the symptoms I have mentioned, see your doctor. If you have anemia, or any other ailment, you cannot possibly treat yourself properly. You should always have your doctor's good advice for your own individual case. Please remember that there are a great many people today eating large amounts of liver who have no reason whatsoever for doing so, unless it is that they enjoy it. But also remember that liver is an excellent food for many nutritional purposes, and when taken with regularity and in adequate amounts can control the disease, pernicious anemia.

SICKNESS AMONG INDUSTRIAL EMPLOYEES IN THE SECOND HALF OF 1930

According to the United States Public Health Service, a favorable health record among industrial workers during the second half of 1930 is indicated from reports of a group of industrial sick benefit associations covering about 135,000 male industrial employees. This record is based upon the frequency of claims for sickness and non-industrial accident benefits covering cases causing disability for eight consecutive calendar days or longer. A low rate of cases causing more than one week's disability was recorded also for male employees of the same industrial establishments in the first half of 1930.

Although available morbidity rates are based on sample data that may be too small to be representative, favorable mortality rates in 1930 suggest that the relative low incidence rates of disabling sickness among the men included in the record under discussion may have prevailed generally.

That the favorable sickness record was due largely to the absence of serious epidemics of respiratory nature is indicated by the non-respiratory disease rate which differed little in 1930 from that of 1929 and 1928. It will be recalled that the mild wave of influenza did not get under way until January, 1931. —*United States Public Health Service.*

CORRESPONDENCE

The Massachusetts Medical Society

TO THE OFFICERS OF THE DISTRICT MEDICAL SOCIETIES AND THE MEMBERS OF THE AUXILIARY COMMITTEE ON STATE AND NATIONAL LEGISLATION

May 25, 1931.

Dear Doctor:—

As Chairman of the Joint Committee on State and National Legislation of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society, I take pleasure in expressing to you the thanks and the appreciation of the Committee for your assistance. You greatly aided us in our efforts to present to the members of the Legislature, and to their committees, the collective opinion of the medical profession, and the ground on which this opinion is based in regard to the bills presented to the State Legislature which concern the public health, medical education, and the practice of the medical profession.

We believe that such a spontaneous representation by members of the profession has been especially effective this year, and you will be pleased to know that with the defeat of the bill for chiropractic registration in the House Wednesday, May 20, the last of the bills of the 1931 Session with which we were concerned has been disposed of, and all of them have been decided in accordance with our representations with the exception of the Compulsory Vaccination Bill in private schools, which was recommended favorably from Committee but was defeated in the Senate.

I am

Respectfully yours,

ROBERT B. GREENOUGH, M.D., *Chairman.*

AN ENDORSEMENT OF DR. RUBIN'S LETTER

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

Editor, *New England Journal of Medicine:*

I read with great interest the letter by Dr. Solomon H. Rubin, Acting Director of School Hygiene in Boston, recently published in your *Journal,** in regard to his plan for coöperating with the family physician and the Boston Health Department in furthering the program for maximum possible physical fitness in children entering the Boston schools in the fall.

It seems to me that he has in his letter weighed very nicely the multiple responsibilities of his office. On the one hand, there is the tendency for officials in health work to become so conscious of

*See page 1121, New Eng. J. Med., May 21, 1931.

the futility of any program they may undertake unless there is full coöperation from the private practitioners that in order to obtain this coöperation they become somewhat negligent of their public responsibility. On the other hand, there is also the danger of becoming so conscious of the burden of needed service and so disturbed by the apparent lack of appreciation of this need by the practicing physicians that one over-corrects and ignores the practitioners. Dr. Rubin frankly states that his objective is that ultimately the maximum amount of this correctional work shall be handled by the private practitioners of the city. He also frankly states that until such time has arrived there is an unequivocal responsibility upon the public health agencies of the city to see that so far as is humanly possible this need is met. May I congratulate him on the nicely balanced thinking which he has shown in this complex field.

He also states that this Department will be prepared to furnish cards recommending to parents this service to their pre-school children, which cards may be used by the private physician in order that any possible onus of personal benefit to the physician through recommending this service himself may be mitigated. We are in the process of preparing such a card and hope that as evidence of an increased consciousness of this responsibility on the part of the practicing physicians the demand for this card will be very great.

Yours truly,

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

CRITICISMS OF AN EDITORIAL RE THE ASCHHEIM-ZONDEK TEST

May 19, 1931.

The Editor, *New England Journal of Medicine:*

I should like to call your attention to some inaccuracies in your editorial on "The Aschheim-Zondek Test" in the May 14 number of the *Journal*. These appear to be derived from similar misconceptions in the article by Ferguson which you discuss.

Aschheim and Zondek repeatedly state that the Prolan A reaction (maturation of the graafian follicles) is *not* diagnostic of pregnancy. Only the Prolan B reaction (formation of corpora lutea and corpora hemorrhagica) is indicative of pregnancy. The high incidence of Prolan A reactions, therefore, in cases of genital carcinoma, in no way detracts from the accuracy of the pregnancy reaction. Only two out of sixty-four cases of carcinoma reported by Aschheim in his monograph "Die Schwangerschaftsdiagnose aus dem Harne" gave the Prolan B reaction and on repetition these cases were also negative. Hydatidiform mole and chorio-epithelioma are the only types of tumor formation which consistently give positive pregnancy tests, and they represent, in a sense, degenerated forms of pregnancy.

The statement that the reaction becomes positive three days after conception is also questionable. Conception takes place shortly after ovulation, which usually occurs about fourteen days after the onset of the preceding menstruation. The test is rarely carried out until several days have elapsed after absence of the expected menstruation, which means that conception, by this time, is approximately of three weeks' duration. While it is difficult to tell how much sooner the reaction may be positive, it is probable that this represents the threshold, because of the greater incidence of negative tests in this period which prove positive on repeated examination a few days later.

Yours truly,

HENRY S. FINKEL, M.D.

21 Bay State Road.

May 22, 1931.

Managing Editor, *N. E. Journal of Medicine:*

I read with regret the article entitled "The Aschheim-Zondek Test" in the May 14 number of the *New England Journal of Medicine*. Whoever wrote this article has made several gross errors in his quotations from the work of Aschheim and Zondek. In the first place, although Prolan A is present in the urine of pregnant women, it is not this hormone which is pathognomonic of pregnancy. Secondly, it is stated that 82 per cent. of genital carcinomas in women gave positive reactions. It is true that they gave a positive reaction for Prolan A, but the important part is that Prolan A is not what is pathognomonic of pregnancy. Thus you will see that the observations in paragraph two are entirely aside from the point. It is Prolan B which is pathognomonic of pregnancy, and this is not found in the urine of women with genital carcinomas.

I think it is very important that this misunderstanding be cleared up.

Very sincerely yours,

FULLER ALBRIGHT, M.D.

ECHEVERRIA'S WORK IN EPILEPSY

Mr. Editor:

The *Archives of Internal Medicine* for November, 1930, contains a review of a recent book: "The Basis of Epilepsy." The review questions a serious piece of work done by an eminent investigator of epilepsy, a man whose scientific contributions won him universal recognition as an authority in this field of research. I refer to Echeverria.

He published "De la trépanation dans l'epilepsie" in Paris, in 1842; later he was assistant physician to the National Hospital for the Paralysed and Epileptic, of London; and in 1870, when he was professor of mental and nervous diseases at the University Medical College of New York, and physician-in-chief to the New York Hospital for Epileptics and

Paralytics, he published his book: "On Epilepsy: anatomo-pathological and clinical notes."

These publications (1842 to 1870) and appointments evidence Echeverria's lifelong study of this disease.

The book review to which I call attention states: "His [Tracy's] anatomic proof consists of references to Echeverria's 'Anatomical Pathological Studies on Epileptics' [sic] of 1870, at a period when neurological conceptions were in their infancy." The reviewer is inaccurate when he attributes this reference to me. The reference in my book (p. 88) reads: "On Epilepsy: anatomo-pathological and clinical notes, N. Y., 1870."

Had the reviewer verified this reference, I do not think that he would have doubted the pathological sympathetic demonstrated by Echeverria in epilepsy, so firmly is it grounded upon facts. It is hardly scientific to refute Echeverria's facts by the naïve assumption that they were produced "when neurological conceptions were in their infancy".

Let the editor of the *Archives* examine Echeverria's book, verify my references and inspect the plates in it depicting actual cases of sympathetic nerve degeneration, and I feel assured that he will make *amende honorable* to the memory of Echeverria. His life's work is too fruitful in scientific results to be ignored; or to be refuted by any other than factual findings.

EDWARD A. TRACY, M.D.

Boston, May 18, 1931.

AN ANNOUNCEMENT OF THE CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

Editor, *New England Journal of Medicine:*

The surgeons of New York and Brooklyn are planning a wonderfully interesting program of clinics for the twenty-first Clinical Congress of the American College of Surgeons, October 12-16. They are keenly interested to provide a complete showing of the clinical activities of that great medical center—a comprehensive and varied program that will include all branches of surgery. The schedule provides for clinics beginning at 2 o'clock on Monday afternoon and for the mornings and afternoons of the following four days. A preliminary clinical program will appear in the June issue of the official journal, *Surgery, Gynecology and Obstetrics*, and in the June *Bulletin* of the College.

Programs are being arranged for five evening meetings at headquarters and for two special sessions of interest to ophthalmologists and otolaryngologists at the Academy of Medicine. At the presidential meeting on Monday evening, the president-elect, Dr. Allen B. Kanavel, of Chicago, will be inaugurated. On the same evening Mr. Arthur H. Burgess, professor of clinical surgery in Victoria University, Manchester, England, and president of the British Medical Association, will deliver the John B. Murphy oration in surgery. Distinguished surgeons of the United States and Canada with eminent surgeons from abroad have been invited to present papers at scientific sessions on Tuesday, Wednesday and Thursday evenings. The annual Convocation of the College will be held on Friday evening.

General headquarters for the Congress will be at the new Waldorf-Astoria Hotel, Park Avenue, 49th to 50th Streets, where ample facilities are available for all Congress activities including scientific sessions, hospital conferences, film exhibitions, and other meetings.

Yours very truly,

FRANKLIN H. MARTIN, M.D.,
Director-General.

RECENT DEATHS

SHEEHAN—DR. WILLIAM ARTHUR SHEEHAN, a Fellow of the Massachusetts Medical Society, died at his home in Brighton, May 18, 1931, aged 32.

He was a graduate of Boston University School of Medicine in 1926 and had devoted himself to the administration of anesthetics.

THORNTON—DR. JAMES BROWN THORNTON, one of the founders of the Boston Floating Hospital, died at his home in Watertown, May 20, 1931, at the age of 69.

Born at Gilmanton, N. H., October 5, 1861, he attended Bowdoin College and was graduated from the medical school of Maine (Bowdoin College) in 1885. Five years later he came to Boston to practice medicine.

He was at one time official physician to 12 Boston theatres and was a United States pension examining surgeon for 20 years. During the World War he was a contract physician and had charge of the medical work at the Massachusetts Institute of Technology.

He was a Fellow of the Massachusetts Medical Society and of the American Medical Association, a member of the Society of Descendants of Colonial Governors, president of the Boston chapter, Sons of the American Revolution in 1900 and 1901, president of the Massachusetts Society of the War of 1812 in 1899 and was a companion of the Massachusetts Commandery of the Loyal Legion.

He leaves his widow, Mrs. Catherine R. (Curane) Thornton and a daughter.

NEWS ITEM

DR. S. R. MEAKER OF BOSTON AND DR. I. C. RUBIN OF NEW YORK ADDRESSED THE PHILADELPHIA COUNTY MEDICAL SOCIETY—Dr. Samuel R. Meaker of Boston and Dr. I. C. Rubin of New York were the speakers at a Symposium on

Sterility held by the Philadelphia County Medical Society, on Wednesday, May 27.

REPORTS AND NOTICES OF MEETINGS

OFFICERS OF THE ESSEX COUNTY HEALTH ASSOCIATION

Dr. Olin S. Pettingill of Middleton was reëlected president of the Essex County Health Association at the annual dinner meeting at the Essex Sanatorium in Middleton. Other officers are as follows: Vice president, Dr. Walter G. Phippen, Salem; honorary vice president, Dr. Israel J. Clarke, Haverhill; treasurer, J. Edward Austin, Salem; counsel, James E. Farley, Peabody; secretary, Miss Mabel Worden, Beverly; executive committee, the above with Mrs. Benjamin F. Cronin, Gloucester; Mrs. H. G. Hamann, Swampscott; Ivan G. Smith, Danvers; Miss Helen Wales, Beverly; Dr. W. D. Walker, Andover.

Directors are as follows:

Amesbury—James Walker, Mrs. Stella G. Wells.

Andover—Mrs. Joseph H. Higginson, Mrs. George French, Miss Anna Kuhn.

Beverly — Mrs. Charles H. Metcalf, Mrs. Lloyd Nichols, Mrs. Richard C. Southwick, Mrs. Chester H. Tannebring.

Boxford—Harlan P. Kelsey.

Danvers — Mrs. L. A. Young, Miss Elizabeth Ahern.

Georgetown—Mrs. Leonard M. Dresser.

Gloucester—Mrs. Benjamin F. Cronin, Miss Rachel B. Coffin, Mrs. Alice M. Curtis, Ernest W. Fellows.

Hamilton and Wenham—Mrs. H. A. Thomas.

Ipswich—Mrs. Charles Goodhue.

Lawrence—Mrs. Granville Allen.

Lynn—Dr. William T. Hopkins.

Lynnfield—Mrs. E. Maud Page.

Manchester—Mrs. William Follett.

Marblehead—Miss Amy B. Lindsey, Dr. Jane S. Devereaux.

Merrimac—Mrs. Eva M. Hoyt.

Middleton—Miss C. Alice Manning.

Nahant—Mrs. Abbie M. Roland.

Newbury—Miss Harriett Smith.

Newburyport—Miss Edith Howe.

North Andover—Mrs. John Everett, Miss Sarah Field.

Rockport—Mrs. Abbie F. Mason.

Rowley—Mrs. Agnes Gilday.

Salisbury—Miss Hannah B. Coffin.

Saugus—Henry A. B. Peckham, Mrs. Philip Jameson.

Swampscott—Mrs. T. Joseph McAuliffe, Mrs. Albert S. Hills, Mrs. M. G. Knowles, Mrs. Gardner L. Lewis.

Topsfield—Mrs. Thomas L. Jenkins.

West Newbury—Mrs. Otis Ray.

Directors-at-large: Mrs. Lawrence Dodge, West Newbury; Frederick Butler, Lawrence; Josiah H. Gifford, Salem; Mrs. J. H. Kimball, Danvers; Dr. Edwin Reynolds, Danvers; Mrs. George W. Towne, Danvers; Miss Helen Wales, Beverly; Dr. W. D. Walker, Andover; Miss Margaret Weir, Beverly; Ralph Wheelwright, Danvers.—*Boston Transcript.*

PLYMOUTH DISTRICT MEDICAL SOCIETY

The Plymouth District Medical Society held its May meeting at Grand Army Hall, Abington, on May 21, 1931. The newly elected president, Dr. John J. McNamara, presided over the meeting with dignity and proficiency. Dr. George A. Moore read the minutes of the last meeting and they were approved. Dr. Charles G. Miles, chairman of the committee on clinics, made a brief progressive report. Among other things he said that there had been fewer complaints made to his committee in regard to clinics than at any time since his connection with the committee. He said that inasmuch as there was so much economic distress suffered by the general practitioner perhaps more than any other member of the medical profession, a careful scrutiny of clinics should receive prompt attention. The general practitioner must be protected from this pernicious method of depriving him of reasonable revenue. Dr. McNamara enlarged the committee on clinics to five. The new appointees were Dr. John J. Condrick of Brockton and Dr. Charles Hammond of Hanover. The committee now consists of Dr. Charles G. Miles, chairman, Dr. John F. Callahan, secretary, Dr. Richard B. Rand of Abington, Dr. John J. Condrick of Brockton, and Dr. Charles Hammond of Hanover. President McNamara then called upon the members for the exhibition of clinical cases. Dr. Peirce H. Leavitt, surgeon of the Goddard Hospital, gave a short talk on the Injection Treatment in Varicose Veins. Dr. M. Frank Barrett, chief surgeon of the Brockton Hospital, demonstrated a very interesting case of Acute Pancreatitis which was proved by autopsy and the pathological specimens were exhibited. Dr. George A. Moore, chief surgeon of the Moore Hospital, gave a short talk on Bleeding Peptic Ulcers, and the operative Procedure. Dr. M. Frank Barrett, who is chairman of the committee on cancer clinics, gave a brief report. He said that on June 11 it would be the first anniversary of the creation of the cancer clinic in Brockton. Dr. Barrett said that the general committee had decided to celebrate this anniversary by having a clinic and inviting all of the doctors in the district. He said that in the past year over 200 had been treated and examined at this cancer clinic and that over 25 per cent. had been found to have some form of malignant growth. The Plymouth District Society voted to coöperate in every possible way to make this meeting a success. Dr. Barrett said that there would be a meeting of the laity in the evening.

Dr. John J. McNamara, president, introduced Dr. George R. Minot, Professor of Medicine at the Harvard Medical School, Director of the Thorndike

Memorial Laboratory of the Boston City Hospital. Dr. McNamara said, "Dr. Minot is the foremost expert in anemia in the world at the present time and it is a great privilege to introduce such a distinguished physician to the Plymouth District Medical Society." Dr. Minot took for his subject "The Adequate Treatment of Anemia," and demonstrated his talk with numerous lantern slides and illustrations. The illustrations showed the rise in blood cells following treatment. The lecture was a very masterly exposition and reflected great credit for the work that Dr. Minot has done for mankind, in this very serious disease, pernicious anemia. A rising vote of thanks was given Dr. Minot by the large gathering of physicians and surgeons present.

The meeting then adjourned and the members retired to the Banquet Hall below, where they were served a most excellent dinner by the Woman's Relief Corps of Abington. This meeting was the largest May meeting that has been held for years. The large Grand Army Hall was filled with physicians and surgeons from all over Plymouth, Norfolk and Bristol counties. A reception committee consisting of Dr. Frederick W. Murdock, chairman, Dr. Thomas H. McCarthy and Dr. Charles Hammond of Hanover was appointed by Dr. John J. McNamara, president of the Plymouth District Medical Society, to meet the guests as they attend the meetings.

CARDIAC COURSE, NEW ENGLAND HEART ASSOCIATION

The eighth and last meeting of the Cardiac Course of the New England Heart Association for the season 1930-1931 will be held on Wednesday afternoon, June 3, at four-thirty, in the John Ware Hall of the Boston Medical Library. All those who are interested are invited to attend.

Oedema

1. Oedema. Dr. Frank Fremont-Smith, Boston City Hospital.
2. Treatment of Oedema by Drugs. Dr. George D. Henderson, Holyoke.
3. Treatment of Oedema Other Than by Drugs. Dr. Burton E. Hamilton, Boston.
4. Discussion to be opened by Dr. Oliver Stansfield, Worcester.

The *annual business meeting* of the Association will be held in the same hall at four-ten P. M. before the scientific programme begins.

PAUL D. WHITE, M.D.

MIDDLESEX SOUTH DISTRICT MEDICAL GOLF ASSOCIATION

SPRING TOURNAMENT

The spring tournament will be held at the Commonwealth Country Club, 91 Algonquin Road, Chestnut Hill, on Wednesday, June 24.

Play is to begin at 1 P. M., with dinner at 6 P. M. Make up your own foursome if possible, but, if unable, come and a match will be arranged for you at the Club House.

These tournaments have been increasingly popular and we want to make this one more of a success than ever.

Prizes: First and Second Gross, first and second net; special prize for the longest drive from a tee to be designated, also for highest score and the most strokes on one hole.

Greens fees, $3.00; dinner, $2.00; expense fee, $1.00.

W. T. O'HALLORAN, *President.*
S. M. BIDDLE, *Secretary.*

THE SCIENTIFIC SESSION OF THE AMERICAN HEART ASSOCIATION

The Scientific Session of the American Heart Association will be held on Tuesday, June 9, 1931, from 10:00 A. M. to 5:00 P. M., in the Main Surgical Clinic of the Pennsylvania Hospital at Eighth and Spruce Streets, Philadelphia.

SOCIETY MEETINGS

CONGRESSES AND CONFERENCES

June 3—Cardiac Course. See notice elsewhere on this page.

June 7, 8, and 9—The American Proctologic Society. See page 951, issue of April 30.

June 8—American Medical Golfing Association Tournament; Philadelphia. See page 1066, issue of May 14.

June 8-12—Woman's Auxiliary to the American Medical Association. See page 743, issue of April 2.

June 8-14—International Hospital Congress. See page 521, issue of March 5.

June 9—Medical Veterans Meeting. See page 895, issue of April 23.

June 9—The Scientific Session of the American Heart Association. See notice elsewhere on this page.

June 16-19—Catholic Hospital Association. See page 690, issue of March 26.

July 6-11—Medical Clinic, Paris. See page 520, issue of March 5.

July 26-31—Third Congress of the Pan American Medical Association. See page 632, issue of March 19.

July 27—The Post Graduate Course of Ear, Nose and Throat Surgery at the University of Bordeaux, France. See page 951, issue of April 30.

July 27-31—Third International Congress of Radiology, Paris. See page 789, issue of April 9.

Aug. 31 - Sept. 4—Neurologists will meet in Berne, Switzerland. See page 896, issue of April 23.

September 14-17—The American Public Health Association. See page 632, issue of March 19.

October 12-16—An Announcement of the Clinical Congress of the American College of Surgeons. See page 1175.

October 19-22—The Interstate Post Graduate Medical Association of North America. See page 1125, issue of May 21.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

September 17—Details to be announced.

Middlesex South District Medical Society

June 24—Golf Association Spring Tournament. See notice elsewhere on this page.

Plymouth District Medical Society

July 17—Midsummer meeting. See page 1011, issue of May 7.

BOOK REVIEWS

Naissance, Vie et Mort des Maladies Infectieuses. By CHARLES NICOLLE, Director of the Pasteur Institut of Tunis. Pp. 220. Librairie Felix Alcan, Paris, 1930.

This is a semi-popular discussion, by the 1928 winner of the Nobel prize in medicine, of the origin, course, and disappearance of infectious diseases. Obviously the subject is one in which reliance must be placed partly upon inadequate historical records and more largely upon speculation. The result is an interesting philosophical essay upon a subject of importance, as Nicolle points out, to the whole future course of civilization. Infectious diseases can only disappear by a conversion of the etiologic agent from a pathogenic parasite to a harmless saprophyte or by the essentially simultaneous destruction of all members of that particular pathogenic species. Since these members may be of world-wide distribution, their destruction becomes an exceedingly difficult and complex procedure. Fortunately the pathogenic agents are not alone in undergoing modification, and man may become so relatively resistant as to overbalance the virulence of the pathogenic agents; thus the infectious diseases which result will become milder and may even disappear.

In form, the volume is similar to many other French scientific publications, being well printed on rather cheap paper and bound in paper, resulting in a book which can be fitted into the budget even in times of business depression.

Clinical Diagnosis by Laboratory Methods. (Seventh Edition.) By JAMES CAMPBELL TODD, PH.B., M.D., Late Professor of Clinical Pathology, University of Colorado, School of Medicine; and ARTHUR HAWLEY SANFORD, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (Mayo Foundation); Head of Section on Clinical Laboratories, Mayo Clinic. Seventh Edition, Thoroughly Revised, 765 Pages with 347 Illustrations, 29 in colors. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, $6.00 net.

This is a revised edition of a well known and widely used textbook. Although the book was written primarily for the use of students, it serves admirably as a guide in methods of laboratory diagnosis for clinicians and laboratory workers. This revision maintains the same general form as previous editions, the chapters on examination of blood, urine, feces, gastric contents, sputum and sero-diagnostic methods being very complete. Each subject and procedure is clearly discussed and the text is enhanced by numerous illustrations. The book has been brought up-to-date by the addition of new clinical laboratory procedures. Because of the author's expressed hope of stimulating the students to more supplementary reading, the references to the literature in footnotes have been increased. A new feature of this edition is a description of the preparation of solutions commonly used for intravenous therapy. As a textbook for students and as a general laboratory reference book this work may be highly recommended.

Deep X-Ray Therapy in Malignant Diseases. By WALTER M. LEVITT, M.B., D.M.R.E. 128 Pages. Published by John Murray, London. Price 10s. 6d. (English).

This volume is published by the Committee of the St. Bartholomew's Hospital Reports, with the sanction of the Medical College. The Committee regards the work as being of considerable value, and its publication is evidence of the continuity of the research in radiation therapy which is being carried out at St. Bartholomew's Hospital.

This book is practically a report of five years' research in the use of deep x-ray therapy, and includes a study of three hundred cases with tables showing end results. All cases were specially selected and carefully studied. It contains valuable data on the effect of irradiation on tumors and on normal tissue which should help the physician to make a proper selection of cases for irradiation therapy. An excellent outline of the general and local care of patients during a course of radiation treatment is given. The symptoms which are likely to be relieved by radiation are described, the various techniques and dosages used are explained. There is also a chapter on undesirable effects such as roentgen sickness, loss of weight, changes in the blood count and cachexia. The time that their patients have been under observation is much too short for reliable conclusions, as to the end results, the immediate results with the dosages used is exceptionally good. In closing the author draws the following conclusions:

Malignant growths, even when at an advanced stage, may be made to disappear by x-ray treatment, and the patients may remain free from all evidence of the disease for long periods—upwards of four years, and perhaps permanently.

The proportion of cases in which these results may be obtained varies in different situations of the disease, being greater in the upper air passage, uterus and breast groups, than in the rectum and oesophagus groups.

In a large proportion of cases in which complete disappearance of the disease is not effected, marked reduction in the size of the growths and great or even complete alleviation of symptoms lasting from months to years may result. Many of these patients are enabled to return to their ordinary work during the greater part of this period.

The risks involved in the treatment are very small, and the discomfort to the patient almost negligible.

In certain cases a combination of x-rays with radium is probably superior to the use of either of these methods of treatment alone.

On the whole the volume contains much valuable information some of which is not found in the current literature.